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(71) Applicant *(for all designated States except US)*: **ISIS INNOVATION LIMITED** [GB/GB]; Ewert House, Ewert Place, Summertown, Oxford OX2 7SG (GB).

(72) Inventor; and

(75) Inventor/Applicant *(for US only)*: **DAVIS, Simon** [AU/GB]; Nuffield Department of Medicine, University of Oxford, Oxford OX3 9DU (GB).

(74) Agents: **ROQUES, Sarah, Elizabeth** et al.; J.A. Kemp & Co., 14 South Square, Gray's Inn, London WC1R 5JJ (GB).

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(54) Title: RECEPTOR MODULATORS

(57) Abstract: Method of identifying a modulator of CD28 comprising comparing a structural model of a candidate modulator with a structural model of CD28 to thereby determine whether the modulator will bind to CD28, wherein the structural model is derived from, or comprises, structural coordinates of a crystal of: (i) CD28, (ii) a fragment of CD28, or (iii) a homologue of (i) or (ii).

RECEPTOR MODULATORS

Field of the Invention

The present invention relates to use of a crystal structure to obtain modulators of a cell surface receptor and to the generation of therapeutic antibodies and chimeric proteins that bind a particular class of signalling receptors.

Background of the Invention

CD28 is present on the surface of T cells and plays an important role in their activation. Signal transduction occurs through CD28 after it is activated (triggered) by binding to its ligand. CD28 activation is dependent on phosphorylation of its cytoplasmic domain. CD28 does not have intrinsic phosphorylation activity but instead is dependent on an extrinsic kinase, e.g. p56lck.

Summary of the Invention

The invention relates to the obtaining of the structure of CD28. This was done by crystallizing a CD28/Fab fragment complex, subjecting it to X-ray diffraction and deriving the structural coordinates from the diffraction measurements. The Fab fragment is from an antibody that has superagonist activity towards CD28, i.e. is able to cause activation of CD28 without the need for a T cell receptor-derived signal. Conventional antibodies that activate CD28 need an additional signal generated by the T cell receptor. The deduced structure allows modulators of CD28 signalling to be obtained which can in turn be used to modulate the immune system.

Accordingly the invention provides a method of identifying a modulator of CD28 comprising comparing a structural model of a candidate modulator with a structural model of CD28 to thereby determine whether the modulator will bind to CD28, wherein the structural model is derived from, or comprises, structural coordinates of a crystal of: (i) CD28, (ii) a fragment of CD28, or (iii) a homologue of (i) or (ii).

In addition the invention relates to antibodies and chimeric proteins that are capable of being superagonists of particular receptors by preferentially excluding phosphatases (as opposed to kinases) from the vicinity of the said receptor.

Accordingly the invention provides an antibody that causes superagonistic signalling of a cell surface receptor, wherein said antibody binds to the extracellular portion of the receptor at a membrane proximal region and said receptor comprises a cytoplasmic domain which is dependent on an extrinsic protein kinase, wherein said antibody does not bind only the C'-D loop of human CD28.

In addition the invention provides a chimeric protein that causes superagonistic signalling of a cell surface receptor, which chimeric protein comprises (i) sequence representing a fragment of a ligand of the receptor, or a homologue of such a fragment, wherein the fragment or homologue is capable of binding to the extracellular portion of the receptor at a membrane proximal region, and (ii) an Fc region of an antibody,
wherein said receptor comprises a cytoplasmic domain which is dependent on an extrinsic protein kinase.

Further the inventión provides a chimeric protein that causes superagonistic signalling of a first cell surface receptor, which chimeric protein comprises two Fv regions of an antibody that may be the same or different, wherein at least one of the Fv regions is capable of binding to said first receptor, and the other Fv region binds to a second cell surface receptor expressed on another cell, wherein said first receptor comprises a cytoplasmic domain which is dependent on an extrinsic protein kinase, and the first receptor can be identical to the second receptor.

Description of the drawings

Figure 1 shows mechanisms of differential triggering of extrinsic kinase-dependent receptors, by superagonistic agents *in vitro* and in *vivo*.

A. *In vitro* superagonistic signalling, giving the example of CD28 antibodies. The basic signalling principle is as follows. Antibodies raised against CD28 bind distally ("conventional" antibodies, left) or membrane-proximally ("superagonists", right), as indicated by the structure of the CD28-5.11A1 antibody-Fab complex. The antibodies hold the cell surface at certain distances from an immobilising substrate: in this case plastic, and as shown in parts B, C and D of the figure, Fc receptor- or other receptor-bearing cells. For superagonistic antibodies this distance is typically 150-200Å, whereas for costimulatory antibodies, it is considerably larger.

The induced proximity of the membrane and the immobilising substrate in the region of the immobilised antibody and receptor will lead to the differential steric exclusion, from the immediate vicinity of the receptor, of other molecules whose extracellular domains are comparable in size or larger than CD28-antibody complexes, such as the tyrosine phosphatase, CD45. In contrast, tyrosine kinases, e.g. p56*lck*, will be unaffected because they are small and/or attached to the inner leaflet of the membrane. The result is that, overall, the phosphorylation of CD28 by the kinases will be favoured over its de-phoshorylation by phosphatases, with the net increase in phosphorylation amounting to receptor triggering. Superagonists are more potent than conventional antibodies because they bind epitopes close to the membrane rather than at the "top" of the molecule, leading to more efficient exclusion of, e.g., CD45, and therefore a larger increase in the net phosphorylation of CD28.

B. *In vivo* superagonistic signalling, giving the example of CD28 antibodies. The binding of the antibody to the membrane-proximal region of CD28 on a T cell, and to the Fc receptor of, e.g. an antigen presenting cell, forces the membranes of the two cells into close proximity (150-200 Å). This in turn excludes CD45 from the immediate vicinity of CD28 as described in A, leading to signalling by CD28.

C. *In vivo* superagonistic signalling, giving the example of a chimeric, ligand-based agent. The chimera consists of a receptor-binding region of the ligand of the receptor, fused to the Fc region of an antibody. The binding of the ligand portion of the chimera to the receptor, and of the Fc region of the chimera to the Fc receptor of, e.g. an antigen presenting cell, forces the membranes of the two cells into close proximity (150-200 Å). This in turn excludes CD45 from the immediate vicinity of the receptor as described in A, leading to signalling by the receptor.

D. *In vivo* superagonistic signalling, giving the example of a chimeric, Fv-based agent. The chimera consists of the receptor-binding Fv region of one antibody, fused to the Fv region of a second antibody reactive with another receptor on a second cell. The binding of the chimera to both receptors forces the membranes of the two cells into close proximity (150-200 Å). This in turn excludes CD45 from the immediate vicinity of the receptor as described in A, leading to signalling by the receptor.

Figure 2 shows the method for identification of binding sites for superagonist antibodies of receptors raised against example receptors.

Description of the sequences mentioned herein

SEQ ID NO:1 shows the amino acid sequence of CD28.

SEQ ID NO:2 shows the sequence of the CD28/Fc fusion protein used to express and dimerise CD28.

Detailed description of the invention

The CD28 protein

Many of the different aspects of the invention discussed herein refer to CD28. It is to be understood that references to CD28 herein also include (i) a homologue of CD28, or (ii) a fragment of CD28 or the homologue, or (iii) a fusion protein comprising CD28, (i) or (ii), unless the context requires otherwise. The homologue and/or fragment of CD28 may be of particular lengths, as discussed below, or may have the binding or functional properties of naturally occurring (native) CD28, such as the ability to bind a cell membrane and/or bind to B7-1 or B7-2. The homologue and/or fragment may comprise the extracellular domain of CD28. The homologue and/or fragment may comprise, or essentially consist of, the fragment of CD28 present in the fusion protein of SEQ ID NO:2. The homologue and/or fragment may have the ability to transduce a signal to the cytoplasm of a T cell.

The CD28 may be of any species of animal, such as a mammalian or avian CD28. The CD28 is preferably a human CD28, for example as shown in SEQ ID NO:1. The CD28 protein may be present in particular forms, for example which aid expression and/or crystallization. Thus the CD28 may be fully glycosylated, partially glycosylated or lack glycosylation and/or have a reduced and alkylated stalk region.

The CD28 crystal

The crystal of CD28 generally comprises CD28 present in a regular repeating array. As mentioned above the term "CD28" includes fragments and/or homologues. Preferred fragments or homologues present in the crystal comprise the extracellular

domain of native CD28. In the crystal the CD28 is preferably in the form of a monomer. The crystal may be of CD28 bound to another moiety. Such a moiety may be an antibody specific for CD28, including fragments/ derivatives of the antibody (as further discussed below), which bind CD28. In a preferred embodiment the crystal is of CD28 bound to the Fab fragment of an antibody. The crystal may comprise CD28 in a form that aids crystallization, and thus the CD28 may be fully glycosylated, partially glycosylated or lack glycosylation and/or have a reduced and alkylated stalk region. In one embodiment the crystal has the coordinates shown in Table 4.

The crystal is generally obtained by providing a solution that comprises CD28 and optionally a moiety that binds to CD28, such as an antibody fragment, and subjecting the solution to conditions that allow the crystal to form. The CD28 which is to be crystallized is generally obtained by recombinant expression, optionally in the form of a fusion protein. The fusion protein may comprise CD28 and a polypeptide sequence which forms a homodimer. Such a fusion protein aids the formation of a CD28 homodimer. Preferably the fusion protein comprises the sequence of the Fc region of an antibody. The fusion protein may be cleaved before crystallisation to separate CD28 from the other polypeptide sequence, for example by thrombin.

The CD28 may be expressed in any suitable cell that is able to express large amounts of CD28, such as a Chinese hamster ovary (CHO) cell.

The CD28 may be further treated in order to aid crystallization. Binding to an antibody fragment, such as a Fab fragment, may be used to prevent the N-linked glycans present on the fully glycosylated form of CD28 from inhibiting the crystallisation of the protein. In one embodiment the antibody (or fragment thereof) is a superagonistic antibody, which may have any of the properties of the superagonistic antibodies mentioned herein. Thus, in one embodiment the antibody (or fragment thereof) binds to a loop region in the extracellular membrane proximal region of CD28, such as the C'-D loop (said loop being defined for example as defined in US-A1-2003/0166860 as the sequence from amino acid positions 52 to 66 CD28 represented by the sequence GNYSQQLQVYSKTGF).

The treatment may comprise reduction of the interchain disulphide bonds in the stalk-like region of CD28, e.g. using dithioreitol (DTT). The reduced cysteines may then be inactivated, for example by alkylation (typically the alkyl moiety has 2 to 6, preferably 2, carbons). The alkylation may be performed using iodoacetamide.

Crystallisation is typically carried out at 15 to 25°C, such as at 17 to 19°C, preferably 18°C. Magnesium formate and polyethylene glycol (PEG) may be used as precipitating agents. Preferably precipitation is carried out using 0.15 to 0.25 M magnesium formate (such as 0.2 M magnesium formate) and 15 to 25 % PEG 3350 (such as 20% PEG 3350).

In the work described in the Examples it was found that in order to crystallise CD28 this protein had to be expressed in the form of a fusion protein with a second protein capable of forming a homodimer (the Fc region of an antibody), the fully glycosylated form of CD28 needed to be complexed with an Fab fragment of an antibody in order that the N-linked glycans did not interfere with crystallisation, and the disulphide bonds in the stalk region of CD28 needed to be reduced and alkylated so that the stalk did not interfere with crystallisation. Thus in a preferred embodiment the method of obtaining a crystal of CD28 (including fragment and/or homologue thereof) comprises

(a) expressing CD28 in the form of a fusion protein with a second protein that is able to form a homodimer, wherein the presence of the second protein in the fusion protein causes CD28 to dimerise,

(b) cleaving the second protein from the fusion protein,

(c) reducing and alkylating the disulphide bond present in the stalk-like region of CD28, and

(d) crystallising CD28 bound to the Fab fragment of an antibody.

Identifying a modulator of CD28

The invention provides a method of identifying a modulator using the structural coordinates determined from the above-mentioned crystal of CD28. The structural coordinates used in the method may be in the form of a structural model, such as a three dimensional representation of the structure or a pharmacophore. The coordinates/model typically comprise information relating to the identity of each

atom (i.e. whether it is nitrogen, oxygen, hydrogen etc.) and its three dimensional location (normally defined by three spatial coordinates) in the structure. The model may also comprise additional information relevant to obtaining modulators, such as the electronic charge at different locations in the structure or information concerning whether or not the bonds in the structure can be rotated.

The coordinates/model used in the method typically comprise a specific region of the surface of CD28 corresponding to the site where it is desired for the modulator to bind. Such a site typically comprises Glu-32, Arg-34, Tyr-51, Glu-97, Met-99, Tyr-100, Pro-101, Pro-102, Pro-103, Tyr-104 and Leu-105, or a part thereof which comprises one or more of these amino acids. Preferred modulators bind to such a site or part thereof. In one embodiment the modulator is able to inhibit binding of another moiety to this site. Such a moiety may be an antibody which is specific to the site.

In the method the coordinates/model of CD28 are compared to the structural coordinates/model of a candidate modulator to determine whether or not the candidate modulator will bind to CD28. The comparison may be performed by any suitable means, such as the methods described or referenced in Lyne (2002) Drug Discovery Today 7, 1047-1055. Thus one or more of the algorithms described in this document may be used, such as one or more of Dock, FlexX, FlexE, Slide, Fred, Gold, Glide, AutoDock, LigandFit, ICM, QXP, Amber, CHARMM, SCORE, VALIDATE, Chemscore, Ludi, PLP, PMF, Bleep, SmoG, ZAP, VIDA, GRID, MCSS, Superstar and ROCS.

The method typically comprises deducing one or more ways of fitting (docking) a candidate modulator with CD28 followed by an evaluation (scoring) of the fit. The evaluation may comprise deducing the binding energy between CD28 and the modulator. This may be done based on the interatomic distances between the atoms involved in binding or by analysis of the force fields of CD28 and the modulator. In one embodiment the evaluation comprises comparing the similarity between the fit between CD28 and the candidate modulator and the fit between one or more other proteins and their ligands. Thus the evaluation may comprise comparison with a database of structures of proteins fitted/bound to ligands.

A candidate modulator which has been selected computationally as discussed above may be physically tested to determine whether or not it is able to bind or modulate CD28. Any suitable binding or activity assay may be used. The binding assay may measure the extent of direct binding between the candidate modulator and CD28 or instead be in the form of a competition assay. The binding assay may comprise/use of any of the following:

(a) an assay of binding to CD28 (which may be immobilized), for example in which (i) the inhibition of B7-1 binding to the CD28 (a soluble form of B7-1 may be used) in the presence of the candidate modulator is measured,

(ii) inhibition of the binding of an antibody (that binds to the ligand binding face of CD28) to the CD28 in the presence of the candidate modulator is measured,

(b) a scintillation proximity assay (SPA) in which (i) or (ii) above are measured,

(c) an ELISA assay in which (i) or (ii) above are measured.

The activity assay may test the effect of the candidate modulator on the ability of B7-1 or B7-2 to activate CD28. In such an assay, B7-1 or B7-2 may be present on a natural or artificial antigen-presenting cell and CD28 may be present on a T cell. CD28 activity may be detected by measuring the extent of T cell activation, for example by determining the extent of T cell proliferation (e.g. thymidine incorporation) or gene expression in the T cell (e.g. with microarrays).

The candidate modulator may be tested using the assays described in Green NJ, Xiang J, Chen J, Chen L, Davies AM, Erbe D, Tam S, Tobin JF. (2003) Structure-activity studies of a series of dipyrazolo[3,4-b:3',4'-d]pyridin-3-ones binding to the immune regulatory protein B7.1. Bioorg Med Chem. 11, 2991-3013 or Erbe DV, Wang S, Xing Y, Tobin JF. (2002) Small molecule ligands define a binding site on the immune regulatory protein B7.1. J Biol Chem. 277, 7363-8.

The antibody and chimeric protein of the invention

The term "antibody" as used herein is understood to also include fragments and derivatives of the antibody which retain binding ability, unless the context requires otherwise. Such fragments/derivatives include Fv, F(ab') and $F(ab')_2$ fragments, as well as single chain antibodies, camelid antibodies and similarly acting proteins.

The antibody of the invention may be of any species, such as a mammalian or bird antibody, preferably a rodent (such as mouse) or primate (such as human) antibody. The antibody may be a chimeric antibody, a CDR-grafted antibody or a humanised antibody. The antibody may be monoclonal or polyclonal. The antibody is preferably an IgG antibody.

The invention also provides two types of chimeric protein that bind to a receptor. One type of chimeric protein comprises the sequence of a fragment of a ligand of the receptor, or sequence that is homologous to such a fragment. The sequence is capable of binding to an extracellular region of the receptor, as discussed further below. The chimeric protein also comprises the Fc region of an antibody, such as that of any of the types of antibody discussed above. Where the chimeric protein is administered to an individual the Fc region may be of an antibody of the same species as the individual.

The second type of chimeric protein provided by the invention comprises two Fv regions of an antibody. The Fv regions may be the same or different. One of the Fv regions is capable of binding to the extracellular region of the receptor (the "first" receptor). The other Fv region may bind the extracellular region of a "second" apposing receptor, this being the same type of receptor as the first receptor (with the second Fv binding at a location which is the same or different from the first Fv region) or an entirely different cell surface receptor, for example in the case where the first and second receptors are each expressed on the surfaces of two cells capable of interacting/contacting each other. Such cells may be any of the types of cell mentioned herein, including T cells.

In one embodiment the second Fv region of the second type of chimeric protein binds to a protein expressed on the surface of T cells, such as the T cell receptor, CD2, CD4, CD5, CD8, CD52 or CS1. The second Fv region may bind proteins expressed on the surface of other cells, such as CD48, CD58, CD59, B7-1 or B7-2. The term "receptor" when used in the present context refers to a protein expressed on surface of a cell (which may or may not be one which is capable of signal transduction, for example).

The antibody and chimeric protein of the invention are able to cause superagonistic signalling of a cell surface receptor when they bind to the receptor,

typically according to the mechanism illustrated in Figure 1. Thus the antibody or chimeric protein is able to cause activation of the receptor (i.e. cause the receptor to transduce a signal to the cytoplasm of the cell) without the need for additional costimulus of the receptor or cell. As mentioned above, in one embodiment the second type of chimeric protein comprises Fv regions able to bind to different types of receptors. Such a chimeric protein is preferably able to induce superagonistic signalling by both of the receptors which it binds.

The antibody and both types of chimeric protein bind the extracellular portion of the receptor at a membrane proximal region of the receptor, typically to a region of the receptor which is within 75Å of the cell membrane, such as within 60Å, 50Å or 40Å of the cell membrane. However the second type of chimeric protein of the invention typically also binds the extracellular portion of the second apposing receptor (as defined above), within 75Å of the cell membrane, such as within 60Å, 50Å or 40Å of the cell membrane.

Generally the antibody or chimeric protein will be capable of binding the native form of the receptor (at the extracellular regions discussed above) when the receptor is present on the surface of the cell where it occurs naturally.

The antibody or chimeric protein cause superagonistic signalling by sterically hindering the access of phosphatases (which tend to be large proteins), such as CD45, to the receptor (i.e. hindering contact of the phosphatase and receptor). In the case of the antibody or first type of chimeric protein such steric hindrance may be caused by the antibody binding to the receptor at one end (through the Fab of the antibody of the invention or the ligand sequence of the first type of chimeric protein) and typically binding to a protein on the surface of another cell (e.g. due to the Fc region of the antibody or chimeric protein binding to an Fc receptor expressed on a second cell), thus bringing the cell membrane of the two cells into close proximity in the region of the receptor.

For the second type of chimeric protein, one of the Fv fragments of the chimeric protein will bind to the receptor, and in the case where the other Fv fragment is specific for a second type of receptor expressed on another cell, the other Fv fragment will bind to the second receptor and thus bring the cell membranes of the two cells into close proximity in the region of the first receptor.

For the antibody and both types of chimeric protein, the close proximities of the cell membranes in the region of the first receptor will sterically hinder phosphatases from accessing the receptor, leading to signal transduction or "triggering" of the receptor. The antibody or chimeric protein are typically capable of bringing the cell membranes of two cells within 200Å of each other, such as within 180Å, 150Å or 120Å of each other.

The antibody or chimeric protein will preferably bind orthogonally to the main axis of the domain of the receptor which is bound, such as at more than 60 degrees from the main axis of the bound domain of the receptor, for example at more than 70, 80 or 90 degrees. The antibody or chimeric protein will preferably lie substantially parallel to the cell surface when bound to the receptor (to ensure the membranes are brought into close proximity).

The antibody or chimeric protein will bind to an extracellular region of the receptor, generally to amino acids of the receptor that are exposed at the surface of the protein. The amino acids in the receptor that are bound may be present in a loop region or a β-strand of the receptor. Preferred loops and strand sequences are shown for key examples in Table 1. The antibody or chimeric protein may bind to any of the epitopes or part thereof shown in Table 1 or an equivalent homologous sequence from the membrane proximal region of other receptors.

The antibody of the invention does not bind only to the C'-D loop of CD28, and thus in one embodiment will bind both the C'-D loop of CD28 and another region of CD28. The antibody may be one which does not bind any portion of the C'-D loop of CD28. The antibody may or may not bind to the C'-D loop (or the equivalent loop) of any other member of the CD28 family of proteins. The antibody of the invention may or may not bind to any or all of the sequences shown in Table 3.

The first type of chimeric protein of the invention may or may not bind to only the C'-D loop of CD28. The first type of chimeric protein may be one which does not bind to any portion of the C'-D loop of CD28. The first type of chimeric protein may or may not bind to the C'-D loop (or the equivalent loop) of any other member of the CD28 family of proteins. The first type of chimeric protein may or may not bind to any or all of the sequences shown in Table 3.

The second type of chimeric protein of the invention may or may not bind to

only the C'-D loop of CD28. The second type of chimeric protein may be one which does not bind to any portion of the C'-D loop of CD28. The second type of chimeric protein may or may not bind to the C'-D loop (or the equivalent loop) of any other member of the CD28 family of proteins. The second type of protein may or may not bind to any or all of the sequences shown in Table 3.

Receptors bound by the antibody and chimeric protein

The receptors which are bound by the antibody or chimeric protein of the invention are expressed on the cell surface. The receptor is capable of being phosphorylated (typically at one or more tyrosine residues in the cytoplasmic region of the receptor), and phosphorylation of the receptor will typically lead to its activation. The receptor will comprise a cytoplasmic domain that is dependent on extrinsic protein kinases to be phosphorylated. Thus the receptor will not have an intrinsic enzymatic (kinase or phophatase) activity. The receptor will typically comprise tyrosine-containing, activating ITAM motifs (YxxL/Ix$_{7-12}$YxxL/I), inhibitory ITIM motifs (I/V/L/SxYxxL/V) or "switch" (TxYxxV/I; activating and inhibitory) signalling motifs (where x is any amino acid). These motifs are phosphorylated by cytoplasmic tyrosine kinases, such as the Src kinases, in competition with antagonistic tyrosine phosphatases, such as CD45. The signalling character of the receptors is defined exclusively by the nature of these motifs (ITAM vs ITIM: activating vs inhibitory).

The receptor may be a member of any surface protein superfamily, but is typically a member of the immunoglobulin superfamily. The receptor may be a member of the CD28 superfamily. The receptor may be any of the specific receptors which are shown in Table 1 or 2 or may comprise a sequence which is homologous to the sequence of any of these specific receptors. The receptor may be CD28, CTLA-4, ICOS, PD-1 or BTLA or comprise a sequence which is homologous to the sequence of any of these specific receptors.

The receptor may be of any of the species that are mentioned herein, and thus may be a mammalian or avian, preferably rodent (such as mouse or rat) or primate (such as human) receptor.

The receptor may be naturally present on a cell of the immune system such as a T cell, B cell, myeloid cell, mast cell, NK cell or a granulocyte.

Screening methods of the invention

The invention provides a method of obtaining an agent which is capable of superagonising the above-mentioned receptor which binds to the antibody and chimeric protein of the invention. The method comprises determining whether a candidate agent has any of the properties discussed above possessed by the antibody or chimeric protein of the invention which allows them to induce superagonistic signalling by a receptor. Thus the method will generally comprise determining whether a candidate agent is able to bind to an extracellular membrane proximal region of the receptor, and may also determine whether a candidate agent is able to bind

- at a particular location from the cell membrane (such as within 75Å of the cell membrane),
- to particular sequences (such as the sequences mentioned in Table 1), or
- in a manner (such as orthogonal to the main axis of the bound receptor domain)

which is discussed above for binding of the antibody or chimeric protein of the invention.

Suitable extracellular membrane proximal regions of a receptor may be identified using a sequence database search algorithm (e.g. BLAST) to search for the solved structure most related to the receptor in the protein structural database (PDB). This structure would then be used to identify membrane proximal regions (preferably β-strands) in the receptor by sequence alignment. Whether or not a candidate agent binds to the identified sequences could be determined by taking the midpoint of the strand and the side chains of amino acids two- and three-residues below this mid-point could then be mutated. Mutant forms of the receptor mutated at each of these residues would then be expressed (e.g. on suitable target cells that can be transfected stably or transiently, such as 293T cells), and used to screen for candidate agents that bound the non-mutated receptor but failed to bind the mutant receptor, for example using fluorescence-activated cell sorting. It is envisaged that only every second strand in a conventional beta barrel protein would need to be mutated. In the case of

a receptor which is a member of the immunoglobulin superfamily, this corresponds to 8-10 mutant lines being generated, in total. Examples of this process are shown in Figure 2 for the immediate CD28 family members (ICOS and CTLA-4) and for the PD-1 protein, which is representative of receptors not related to CD28.

Agents that induce superagonistic signalling by a receptor may also be identified using a peptide which comprises sequence from the extracellular membrane proximal region of a receptor or homologous sequence thereto. Such a sequence is typically 5 to 20 amino acids long, such as 10 to 15 amino acids long. In one embodiment the agent is identified using peptide arrays. The mapping of discontinuous epitopes can be performed using overlapping peptides derived from the entire primary sequence of a protein. The whole protein sequence is generated in the form of short overlapping peptides (for example each shifted by 3 amino acids), e.g. prepared by standard spot synthesis (Automated Spot Synthesiser, Abimed, Langenfeld, Germany) on Whatman 50 filter paper (Whatman, Maidstone, England). The C-termini of the peptides may be attached to cellulose via a $(\beta\text{-Ala})_2$ spacer and the N-termini acetylated. The arrays may be subsequently probed either directly on the peptide membrane or after transfer to another surface (e.g. nitrocellulose) using the monoclonal antibody and a chemiluminescence-based detection system (ECL Western Blotting Detection System, Amersham Pharmacia Biotech).

Suitable candidate agents that can be tested in the above screening methods include antibody agents (for example, monoclonal and polyclonal antibodies, single chain antibodies, chimeric antibodies and CDR-grafted antibodies). Furthermore, combinatorial libraries, defined chemical identities, peptide and peptide mimetics, oligonucleotides and natural agent libraries, such as display libraries (e.g. phage display libraries) may also be tested. The candidate agents may be chemical compounds, which are typically derived from synthesis around small molecules. Batches of the candidate agents may be used in an initial screen of, for example, ten substances per assay, and the agents of batches which show the required property tested individually.

Obtaining a superagonistic antibody

The invention provides methods for obtaining a superagonistic antibody. In one embodiment the method comprises screening antibodies for the ability to superagonise a receptor, wherein the antibodies have been obtained either by immunizing an animal with the receptor or a homologue or fragment of the receptor, or from a combinatorial antibody library. Preferably the animal is immunized with a protein which comprises the sequences shown in Table 1, or a fragment thereof, or a homologue of such a sequence or fragment.

Whether or not an antibody is a superagonistic antibody may be ascertained by determining whether or not the antibody can bind an extracellular membrane proximal region of a receptor, for example using any of the suitable methods described above in the section of screening for superagonistic agents.

Alternatively the antibody can be tested in an activity assay to see whether or not it causes activation of the receptor. Receptors that are activated by the antibody will either transduce an activating signal or an inhibitory signal to the cell cytoplasm. In the case of receptors which transduce an activating signal, as in the case of CD28, the activity which is tested may be activation of the cell. This can be determined using functional screens based on, for example, cell proliferation, increased cellular calcium, enhanced tyrosine phosphorylation of proteins in the cell or the production of/release of substances by the cell, e.g. IL-2 production. In the case of receptors that transduce inhibitory signals when activated, activation of such receptors can be ascertained by detection of any of the changes which occur to the receptor or the cell when such a signal is transduced, such as changes in the extent of phosphorylation of one or more proteins in the cell.

The binding or activity assay may be carried out *in vitro* (inside or outside a cell) or *in vivo*.

In one embodiment of the method the antibody is obtained by immunising an animal with a peptide comprising a sequence of length 5 to 20 amino acids which represents an extracellular membrane proximal region of the receptor, or a homologue of such sequence, and obtaining the antibody produced by the animal against said sequence. Alternatively the antibody may be obtained by selecting an antibody from a combinatorial library based on its ability to bind a peptide

comprising a sequence of length 5 to 20 amino acids which represents an extracellular membrane proximal region of the receptor, or a homologue of such sequence.

In one embodiment the peptide which is used to immunise the animal or select an antibody from a library only comprises sequence from the receptor, or a homologue thereof, and does not comprise any additional sequence. In this embodiment the peptide will only be 5 to 20 amino acids long. However in other emobodiments the peptide comprises other sequence to the N-terminus and/or C-terminus of the receptor sequence, such as sequence which is different from (and typically not homologous to) receptor sequence.

Antibodies

Various types of antibodies are mentioned herein, including antibodies obtained by immunisation. Such antibodies may be raised against specific epitopes/sequences. An antibody, or other compound, "specifically binds" to a sequence when it binds with preferential or high affinity to the sequence for which it is specific but does not bind or binds with only low affinity to other sequences. A variety of protocols for competitive binding or immunoradiometric assays to determine the specific binding capability of an antibody are well known in the art (see for example Maddox *et al*, J. Exp. Med. 158, 1211-1226, 1993). Such immunoassays typically involve the formation of complexes between the specific sequence and its antibody and the measurement of complex formation.

Means for preparing and characterising antibodies are well known in the art, see for example Harlow and Lane (1988) "Antibodies: A Laboratory Manual", Cold Spring Harbor Laboratory Press, Cold Spring Harbor, NY. For example, an antibody may be produced by raising antibody in a host animal.

A method for producing a polyclonal antibody comprises immunising a suitable host animal, for example an experimental animal, with the immunogen and isolating immunoglobulins from the animal's serum. The animal may therefore be inoculated with the immunogen, blood subsequently removed from the animal and the IgG fraction purified.

A method for producing a monoclonal antibody comprises immortalising cells which produce the desired antibody. Hybridoma cells may be produced by fusing spleen cells from an inoculated experimental animal with tumour cells (Kohler and Milstein (1975) *Nature* **256**, 495-497).

An immortalized cell producing the desired antibody may be selected by a conventional procedure. The hybridomas may be grown in culture or injected intraperitoneally for formation of ascites fluid or into the blood stream of an allogenic host or immunocompromised host. Human antibody may be prepared by *in vitro* immunisation of human lymphocytes, followed by transformation of the lymphocytes with Epstein-Barr virus.

For the production of both monoclonal and polyclonal antibodies, the experimental animal is suitably a goat, rabbit, rat, mouse, guinea pig, chicken, sheep or horse. If desired, the immunogen may be administered as a conjugate in which the immunogen is coupled, for example via a side chain of one of the amino acid residues, to a suitable carrier. The carrier molecule is typically a physiologically acceptable carrier. The antibody obtained may be isolated and, if desired, purified.

The peptide of the invention

The invention also provides a peptide of length 5 to 20 amino acids comprising a sequence which binds to the superagonistic antibody of the invention. The peptide may have a length of 10 to 15 amino acids. The peptide may comprise sequence from an extracellular membrane proximal region of any of the receptors mentioned herein or have a homologous sequence thereto (such sequence may have a length of 5 to 20 amino acids). The peptide may thus comprise any of the sequences shown in Table 1 or homologues of such sequences.

Therapeutic aspects of the invention

The invention provides substances which can be used to treat a patient. The patient is typically a human or animal, such as a mammal or bird, for example a cow, sheep, goat, pig, camel, horse, dog, cat, goose, duck or chicken.

The modulator of CD28 which is identified from a structural model or structural coordinates of CD28 can be used to modulate the immune system of a

patient. Such modulators will either agonise or antagonize CD28 (i.e. cause or contribute to an increase or decrease, respectively, in CD28 signalling activity). Modulators which agonise CD28 may be used to stimulate the activity of T cells (which express CD28) and thus to stimulate an immune response against an antigen. Such modulators may therefore be used in the prevention or treatment of a disease caused by a pathogenic agent, such as a virus, microorganism (for example a bacterium) or multicellular organism; or in the prevention or treatment of a cancer.

Modulators which antagonise CD28 may be used to inhibit the activity of T cells, and thus to inhibit an immune response to an antigen. Such modulators may be used to prevent or treat an autoimmune disease (such as rheumatoid arthritis or asthma), allergy or transplantation rejection.

The superagonistic antibodies, chimeric proteins and agent described herein may also be used in the therapy of patients to prevent or treat a disease. These substances may be used to modulate the state of a cell on which the relevant receptor is present. Thus the substance may activate or inhibit cell activity depending on whether the activated receptor transduces a stimulatory or inhibitory signal to the cytoplasm of the cell. The modulation of the cell may thus be used to treat a disease caused by the cell or a disease which can be alleviated or prevented by the cell.

In a preferred embodiment the cell is a cell of the immune system (e.g. any such cell mentioned herein) and therefore superagonistic antibodies, chimeric proteins and agents may be used to modulate the immune response of a patient. Superagonistic antibodies, chimeric proteins and agents which stimulate an immune response may be used in the prevention or treatment of a disease caused by a pathogenic agent, such as a virus, microorganism (for example a bacterium) or multicellular organism; or in the prevention or treatment of a cancer. Superagonistic antibodies, chimeric proteins and agents which inhibit an immune response may be used to prevent or treat an autoimmune disease (such as rheumatoid arthritis or asthma), allergy or transplantation rejection.

The patient may also be treated by generating a superagonistic antibody response in the patient by immunisation with a peptide that stimulates the generation of such a response. The antibody that is generated will be specific to a sequence present in the peptide. The peptide will comprise sequence from the extracellular

membrane proximal region of a receptor, or sequence which is homologous thereto. Such receptor sequence may be any of the membrane proximal sequences of a receptor (or homologues thereof) mentioned herein. Thus the peptide may be any of the peptides mentioned herein which comprise such sequence.

In one embodiment a nucleic acid capable of expressing any of the above-mentioned therapeutic substances is administered to the patient. Such a nucleic acid typically comprises a region which encodes the therapeutic substance and a control region which causes expression of the coding sequence, such as a promoter. Thus the nucleic acid may be in the form of a vector.

The substances mentioned herein

The modulators, antibodies, chimeric proteins, peptides and nucleic acids mentioned herein may be present in a substantially isolated form. They may be mixed with carriers or diluents which will not interfere with their intended use and still be regarded as substantially isolated. They may also be in a substantially purified form, in which case they will generally comprise at least 90%, e.g. at least 95%, 98% or 99%, of the proteins nucleic acids or dry mass of the preparation.

Homologues

Homologues of protein sequences are referred to herein. Such homologues typically have at least 50% homology, preferably at least 60%, 70%, 80, 90%, 95%, 97% or 99% homology, for example over a region of at least 15, 20, 30, 100 more contiguous amino acids. The homology may be calculated on the basis of amino acid identity (sometimes referred to as "hard homology").

For example the UWGCG Package provides the BESTFIT program which can be used to calculate homology (for example used on its default settings) (Devereux *et al* (1984) *Nucleic Acids Research* **12**, p387-395). The PILEUP and BLAST algorithms can be used to calculate homology or line up sequences (such as identifying equivalent or corresponding sequences (typically on their default settings), for example as described in Altschul S. F. (1993) J Mol Evol 36:290-300; Altschul, S, F *et al* (1990) J Mol Biol 215:403-10.

Software for performing BLAST analyses is publicly available through the National Center for Biotechnology Information (http://www.ncbi.nlm.nih.gov/). This algorithm involves first identifying high scoring sequence pair (HSPs) by identifying short words of length W in the query sequence that either match or satisfy some positive-valued threshold score T when aligned with a word of the same length in a database sequence. T is referred to as the neighbourhood word score threshold (Altschul *et al*, supra). These initial neighbourhood word hits act as seeds for initiating searches to find HSPs containing them. The word hits are extended in both directions along each sequence for as far as the cumulative alignment score can be increased. Extensions for the word hits in each direction are halted when: the cumulative alignment score falls off by the quantity X from its maximum achieved value; the cumulative score goes to zero or below, due to the accumulation of one or more negative-scoring residue alignments; or the end of either sequence is reached. The BLAST algorithm parameters W, T and X determine the sensitivity and speed of the alignment. The BLAST program uses as defaults a word length (W) of 11, the BLOSUM62 scoring matrix (see Henikoff and Henikoff (1992) *Proc. Natl. Acad. Sci.* USA 89: 10915-10919) alignments (B) of 50, expectation (E) of 10, M=5, N=4, and a comparison of both strands.

The BLAST algorithm performs a statistical analysis of the similarity between two sequences; see e.g., Karlin and Altschul (1993) *Proc. Natl. Acad. Sci.* USA 90: 5873-5787. One measure of similarity provided by the BLAST algorithm is the smallest sum probability (P(N)), which provides an indication of the probability by which a match between two amino acid sequences would occur by chance. For example, a sequence is considered similar to another sequence if the smallest sum probability in comparison of the first sequence to the second sequence is less than about 1, preferably less than about 0.1, more preferably less than about 0.01, and most preferably less than about 0.001.

The homologous sequence typically differs by at least 1, 2, 5, 10, 20 or more mutations (each of which may be a substitution, deletion or insertion of an amino acid). These mutations may be measured across any of the regions mentioned above in relation to calculating homology. The substitutions are preferably conservative substitutions. These are defined according to the following Table. Amino acids in

the same block in the second column and preferably in the same line in the third column may be substituted for each other:

ALIPHATIC	Non-polar	G A P
		I L V
	Polar – uncharged	C S T M
		N Q
	Polar – charged	D E
		K R
AROMATIC		H F W Y

Administration

The formulation of any of the therapeutic substances mentioned herein will depend upon factors such as the nature of the substance and the condition to be treated. Any such substance may be administered in a variety of dosage forms. It may be administered orally (e.g. as tablets, troches, lozenges, aqueous or oily suspensions, dispersible powders or granules), parenterally, subcutaneously, intravenously, intramuscularly, intrasternally, transdermally or by infusion techniques. The substance may also be administered as suppositories. A physician will be able to determine the required route of administration for each particular patient.

Typically the substance is formulated for use with a pharmaceutically acceptable carrier or diluent. The pharmaceutical carrier or diluent may be, for example, an isotonic solution. For example, solid oral forms may contain, together with the active compound, diluents, e.g. lactose, dextrose, saccharose, cellulose, corn starch or potato starch; lubricants, e.g. silica, talc, stearic acid, magnesium or calcium stearate, and/or polyethylene glycols; binding agents; e.g. starches, arabic gums, gelatin, methylcellulose, carboxymethylcellulose or polyvinyl pyrrolidone; disaggregating agents, e.g. starch, alginic acid, alginates or sodium starch glycolate; effervescing mixtures; dyestuffs; sweeteners; wetting agents, such as lecithin, polysorbates, laurylsulphates; and, in general, non-toxic and pharmacologically

inactive substances used in pharmaceutical formulations. Such pharmaceutical preparations may be manufactured in a known manner, for example, by means of mixing, granulating, tabletting, sugar-coating, or film coating processes.

Liquid dispersions for oral administration may be syrups, emulsions and suspensions. The syrups may contain as carriers, for example, saccharose or saccharose with glycerine and/or mannitol and/or sorbitol.

Suspensions and emulsions may contain as carrier, for example a natural gum, agar, sodium alginate, pectin, methylcellulose, carboxymethylcellulose, or polyvinyl alcohol. The suspensions or solutions for intramuscular injections may contain, together with the active compound, a pharmaceutically acceptable carrier, e.g. sterile water, olive oil, ethyl oleate, glycols, e.g. propylene glycol, and if desired, a suitable amount of lidocaine hydrochloride.

Solutions for intravenous or infusions may contain as carrier, for example, sterile water or preferably they may be in the form of sterile, aqueous, isotonic saline solutions.

A therapeutically effective amount of substance is administered. The dose may be determined according to various parameters, especially according to the substance used; the age, weight and condition of the patient to be treated; the route of administration; and the required regimen. Again, a physician will be able to determine the required route of administration and dosage for any particular patient. A typical daily dose is from about 0.1 to 50 mg per kg, preferably from about 1.0 mg per kg to 10 mg per kg of body weight, according to the activity of the specific therapeutic substance, the age, weight and condition of the subject to be treated, the type and severity of the disease and the frequency and route of administration. Preferably, daily dosage levels are from 5 mg to 2 g.

The following Examples illustrate the invention:

Examples

Overview of crystallisation strategy

In order to undertake crystallization trials with glycoproteins, such as the CD28 homodimer, it is generally necessary to produce large amounts of protein (>10 milligrams). For this the glutamine synthetase-based Chinese hamster ovary cell expression system (Lonza Biologics Plc, UK) was chosen, which is one of the few

eukaryotic expression systems capable of glycoprotein production at this level. The Lec3.2.8.1 cell line was used as the expression host as this provides the option of enzymatically removing unnecessary glycosylation after protein folding and secretion has taken place, which generally favours crystallization. In order to enhance homodimerization, the protein was expressed in the form of a fusion protein with the Fc region of immunoglobulin, which is itself a homodimer. Because the link between the CD28 portion and the Fc is extremely flexible (which will generally discourage crystallization), the construct was prepared in a way that made it thrombin-cleavable.

It was found that producing active, thrombin-cleavable protein depended on the location of the cleavage site. When the cleavage site was too close to the ligand binding domain (to make a more compact protein for crystallization), the protein produced was mis-folded.

In general removal of the N-linked glycans from a glycoprotein substantially enhances its ability to crystallise. Unexpectedly, and in marked contrast to other cell surface glycoproteins, which are generally very stable and active after deglycosylation, the CD28 homodimer proved to be very unstable after deglycosylation with the enzyme endoglycosidase H at the slightly acidic pH at which this enzyme is active. Therefore it was necessary to leave the glycosylation of CD28 intact. The glycosylated form of the homodimer failed to crystallise in more than 100 trials.

To reduce the impact of the glycosylation, therefore, an alternative strategy was employed, in which Fab fragments of anti-CD28 antibodies were prepared and crystallised with CD28. Fab fragments are almost invariably unglycosylated, so the formation of complexes with the Fab can be expected to reduce the impact of the glycans by 80%, regardless of where they bind the protein of interest (a Fab is four times the size of the CD28 monomer). The likelihood that the complex of the Fab and protein of interest will crystallise depends on the overall shape of the complex, (i.e. its "compactness") and on the chemical properties of the surfaces of the complex involved in forming crystal lattice contacts. Because the surface of the complex that will form lattice contacts cannot be predicted *a priori*, it is impossible to predict whether a given Fab will give crystals when complexed with the protein. Not unexpectedly, therefore, the homodimer still failed to crystallize after being complexed with one Fab molecule

per homodimer for two different antibodies (5.11A1 and 9D7), or two Fabs per homodimer for one of these antibodies (5.11A1), in >100 trials per complex.

In addition the stalk region was expected to create problems. The key to obtaining crystals was to prepare monomeric CD28 by gentle reduction and alkylation of the interchain disulphide bond in the stalk-like region of the homodimer. The expectation was that the presence of an intact disulphide in the stalk might rigidify the stalk, making the overall structure less compact. Two complexes formed with the monomer and two different Fabs (5.11A1 and 9D7) gave crystals, but only one of these crystal forms (obtained with 5.11A1 Fab fragments) proved to be suitable for data collection. Other antibodies may also have been useful in crystallising CD28, including antibodies that bind to the same loop of CD28 as bound by 5.11A1 (the C'-D loop) or that bind to the ligand binding site of CD28. Suitable antibodies are described in US-A1-2003/0166860 and Luhder et al (2003) J. Exp. Med., 197, 955-66.

Preparation of CD28 homodimer

(i) Construct generation

The polymerase chain reaction (PCR) was used to amplify complementary DNA (cDNA) encoding the signal peptide sequence of mouse immunoglobulin heavy chain and the extracellular domain of CD28 (residues 1-134 of the mature polypeptide; SEQ ID NO:1) from 44 ng of the plasmid, pKGe1145. The oligonucleotides used in the reaction added, at the 5' end, an Xba I cleavage site and 24 nt of the rat CD4 5' untranslated region and, at the 3' end, codons for the thrombin cleavage site, LVPRGS. The sequences of the oligonucleotide primers used for this were (oligonucleotide sequences are given in 5' to 3' direction) CD28T_5': TAG TAG TCT AGA CCC CAT CCG CTC AAG CAG GCC ACC ATG GAT TGG CTG CGG AAC TTG; and CD28T_3': CTA CCA CTA CCC CTG GGT ACC AGG GGC TTA G. In a second reaction, cDNA encoding the heavy chain constant (C) region-2 and C region-3 domains of murine Ig (residues 103-323 of the secreted protein) was amplified by PCR from 44 ng of pKGe1145. At the 3' end, the oligonucleotides added an Xba I restriction site to aid cloning. The NH2-terminus of the protein encoded by the Ig cDNA had the sequence GSKPSIS rather than GCKPCIC. The sequences of the oligonucleotide primers for this reaction were Ig_5': CTA AGC CCC TGG TAC CCA GGG GTA GTG

GTA G; and Ig_3': CTA CTA TCT AGA TTA TTT ACC AGG AGA GTG GGA G. The PCR conditions for both reactions were: denaturation at 94°C for 15s, annealing at 59°C for 30s, extension at 68°C for 210s; 2.5U of Accuzyme polymerase (Bioline Ltd, U.K.), 300 nM oligonucleotides and 200 μM dNTPs were used and the reactions run for 20 cycles.

In a third reaction, PCR was used to anneal the two initial products together to generate cDNA encoding a chimera consisting of the CD28 extracellular domain fused to murine IgGFc via a thrombin cleavable sequence (called the CD28TFc chimera; SEQ ID NO:2). Ten microlitres of each of the initial PCR reaction product mixtures was used as template and 300 nM of the CD28_5' and Ig_3' oligonucleotides was also added to the mix. The PCR conditions were otherwise identical to the first set except that they were run for only 4 cycles. The PCR product was gel-purified, cut with Xba I and cloned into the Xba I site of pEE14 for expression in the glutamine synthetase-based gene expression system (Lonza Biologics Plc, UK). The plasmid construct was then sequenced using dideoxy sequencing.

(ii) Expression of the CD28TFc chimera

Lec3.2.8.1 cells, 2 x 10^6/flask, were transfected with 20 μg of DNA/flask for 3h using Pfx-8 lipids (Invitrogen Inc), and then the cells were cloned the following day by plating out at 2 x 10^6 cells/96-well plate. After 2 weeks, the clones expressing the highest amounts of CD28TFc were selected by Western-blotting using the semi-quantitive ECL detection system (Amersham-Pharmacia, UK) and an anti-mouse Fc primary antibody (Sigma-Aldrich Co.). The best-expressing clone was expanded and grown to confluence in bulk culture in Cell Factories (Nunc A/S, Denmark) containing immunoglobulin-free medium (Invitrogen-Gibco Ltd, UK) in the presence of 2mM sodium butyrate. The supernatant was harvested after approximately four weeks and clarified by centrifugation at 5,000*g*.

(iii) CD28TFc purification

The spent, clarified medium was concentrated to approximately 1/6 of the original volume using a Masterflex L/S concentrator (Helixx Technologies, Inc.). The sample was then buffer-exchanged against the original volume of 3M NaCl, 1.5M

glycine, pH 8.5 high-salt buffer and the protein incubated with Protein A Sepharose beads (Sigma-Aldrich Co.) using 10 mls of swollen beads/litre of concentrated supernatant at 1 litre of supernatant/5 litre conical flask or beaker. The pH was adjusted to pH 8.5 with 2.75 M Tris, pH 8.5 to allow binding of the CD28TFc to Protein A overnight with gentle stirring at 4°C.

The beads were allowed to settle for 2 h prior to siphoning off the depleted supernatant. The settled beads were then transferred to 50 ml Falcon tubes (Becton Dickinson Biosciences, UK) and recovered by centrifugation at 200*g*. The beads were transferred to a 30 ml column (Biorad, UK) and then washed with 300 mls of cold phosphate-buffered saline, 0.5 M NaCl, pH 8.3. The column was eluted with 0.1 M citric acid, pH 3.0 into 10 x 2 ml fractions in glass tubes containing 0.4 ml of 2.75M Tris, pH 8.5 for immediate neutralization of the citric acid. Fractions containing CD28TFc according to analysis by 12% sodium dodecyl sulphate polyacrylamide gel electrophoresis (SDS-PAGE) were concentrated to 0.5ml or no higher concentration than 20 mg/ml using a Centriprep 10 concentrator (Millipore Corp). The protein was then applied to a Superdex 200 H/R gel filtration column (Amersham Biosciences) pre-equilibrated with 10 mM Hepes, 140 mM NaCl, pH 7.4 (HBS buffer) for up to three successive runs. Eluting fractions were monitored for absorbance at 280 nm. Protein-containing fractions were examined by SDS-PAGE. Each cycle of batch purification yielded ~9 mgs of CD28TFc; up to 7 batch-purfications was required to deplete all the CD28TFc per set of 6 cell factories (~5 litres of starting tissue culture supernatant).

(iv) Thrombin protease cleavage of CD28TFc

The most-pure fractions containing CD28TFc were pooled for thrombin cleavage. Initial trial titrations dictated the use of the following conditions for large-scale cleavage of CD2TFc: lyophilized thrombin (Sigma-Aldrich Co.) was re-hydrated in HBS buffer to a concentration of 1U/µl and this was then added to the CD28TFc at 0.11 µl/6 µg of protein for overnight digestion at 37°C. The reaction was stopped by addition of freshly re-hydrated benzamidine to a final concentration of 1mM. A 12% non-reducing SDS-PAGE gel was used to confirm the extent of cleavage.

(v) Purification of the CD28 homodimer

The pH of the thrombin-cleaved protein was adjusted to pH 8.5 using 2.75M Tris pH 8.5, prior to concentration to 0.5 ml using a Centriprep 10 concentrator (Millipore Corp). Fresh Protein A beads were washed and rehydrated to a final volume of ~5 mls, prior to being packed into a 0.7 cm x 20 cm Econo-column (Bio-Rad, U.K.) and then equilibriated with HBS, pH 8.5 at 4°C. The concentrated protein was then applied to the column, allowed to run into the bed, and then sequential fractions were eluted by addition of 0.5 ml of HBS, pH 8.5 to the top of the bed every 10 minutes for 2h. The absorbance of each fraction was determined at 280 nm. The extent of separation of the Fc from the thrombin-released CD28 homodimer was determined by 12% SDS-PAGE analysis of the fractions under non-reducing conditions. The critical steps for good separation were (1) to allow the protein to pass slowly through the column and (2) to conduct the separation at 4°C. The homodimer was concentrated to 0.5 ml and subjected to gel-filtration on a Superdex 75 H/R column (Amersham Biosciences). The purified homodimer was used for crystallization trials, reduced and alkylated for other crystallization trials (see below), or frozen at –80°C for future use.

<u>Preparation of Fab fragments of 5.11A1 antibody</u>

Fab fragments were prepared using the Pierce Biotechnology ImmunoPure® Fab Preparation Kit, as briefly outlined below.

(i) Fab fragment generation and purification

Nine millilitres of whole, purified 5.11A1 antibody at 0.3 mg/ml in PBS was concentrated to 1 ml and then diluted to 10 mls with 20 mM sodium phosphate, 10 mM EDTA, pH 7 and then re-concentrated to 0.5 ml. To this was added 0.5 ml of 20 mM sodium phosphate, pH 7 containing 3.5 mg/ml cysteine•HCl. The 1 ml mixture was then added to 0.5 ml of a 50% slurry of Sepharose-immobilized Papain supplied with the kit, which had been pre-equilibrated with 20 mM sodium phosphate pH 7 containing 3.5 mg/ml cysteine•HCl. This was then incubated for 5 hours in a shaking water bath at 37°C. The cleaved Fab and Fc fragments and undigested IgG were separated from the Immobilized Papain beads by centrifugation at 1000g and the beads rinsed with 1.5 ml of the ImmunoPure IgG Binding Buffer supplied with the kit. The wash was then combined with the crude digest and the mix applied to a Sepharose-immobilized Protein

A column pre-equilibrated with 13 ml of ImmunoPure IgG Binding Buffer. The column was washed with 6.0 ml of the Binding Buffer and the eluate containing the Fab fragments collected (9 mls in total). The eluate was concentrated to 0.5 ml and applied to a Superdex 200 H/R gel filtration column (Amersham Biosciences) pre-equilibrated with HBS buffer. Eluting fractions were monitored for absorbance at 280 nm. Protein-containing fractions were examined by SDS-PAGE.

Preparation of a crystallizable form of CD28

(i) Reduction and alkylation of CD28

CD28 has an interchain disulphide bond within the "stalk-like" region that is largely responsible for homodimerization. It was speculated that its location within the stalk would render it more sensitive to reducing agents than the "canonical" disulphide bond and one other disulphide buried within the ligand-binding domain. If true this meant that monomeric CD28 could be generated which was native-like and fully active for ligand and antibody binding. The minimum concentration of reducing agent required to release the monomer was ascertained by titrating the reducing agent, dithiothreitol (DTT). The reduced cysteines in the protein and excess DTT were each then inactivated by alkylation with a 2.2-fold molar excess of iodoacetamide (IAA). This titration indicated that the optimal conditions were 12.5 μM protein, 1.5mM DTT and 3.3 mM IAA. The reduced protein sample, generally ~4 ml, was finally concentrated to 0.5 ml and separated from unreduced homodimer by gel-filtration on a Superdex 75 H/R column (Amersham Biosciences).

Crystallographic methods

(i) Crystallization and data collection

The CD28/5.11A1 Fab complex was formed by incubating a 2:1 molar ratio of CD28 and Fab, followed by concentration of the protein mixture to 15.6 mg/ml in HBS (the extinction coefficient, ε, of CD28 is 1.7 and that of the Fab is 1.4). Crystals were grown at 18°C in 0.2 μl hanging drops (0.1 μl of the protein mixture plus 0.1 μl of precipitating reagent) set up using a Cartesian Robot (APS Robotics & Integration, llc; Brown et al (2003) J. Appl. Cryst. 36, 315-18). The precipitating reagent consisted of a mixture of 0.2 M magnesium formate and 20% polyethylene glycol 3350 in water.

Crystals appeared in 5-7 days and were cooled to 100K in the precipitating reagent with glycerol added to a final concentration of 10%, using a Cryojet liquid nitrogen system for data collection (Oxford Instruments, Abingdon, UK). Crystals belong to space group C2 with unit cell dimensions a = 191.2, b = 47.4, c = 71.8 Å and a calculated solvent content of 56-58% for one CD28 monomer and one Fab molecule per asymmetric unit (ignoring the effects of glycosylation). The 2.7Å resolution data were collected from a single crystal at 100K at Beamline ID2 at the European Synchrotron Radiation Facility using a FReLoN CCD. One hundred and fifty-eight 1° rotation images were collected and reduced with HKL2000 (Otwinowski and Minor (1997) Methods Enzym. 276, 307-26).

(ii) Structure determination and refinement

The structure was solved by molecular replacement in XPLOR v3.851 (Brünger (1992) X-PLOR Version 3.1. A system for X-ray crystallography and NMR. Yale University Press, New Haven, CT.) using a set of search models generated from a single Fab structure (PDB accession no. 15c8) by varying the elbow angle in 2° steps using an XPLOR script. A single unambiguous solution was found when the elbow angle was altered by –8° as defined by the script. After rigid body refinement of each domain of the Fab in CNS (Brünger et al. (1998) Acta Cryst. D54, 905-21), the R-factor was 44.4%. Initial electron density maps phased with Fab alone showed very limited, if any, electron density for the CD28 molecule. The Fab model was mutated to the sequence of 5.11A1 before proceeding with two cycles of manual rebuilding in O (Jones et al (1990) O: A macromolecular modelling environment. Crystallographic and modeling methods in molecular design. Bugg and Ealick, Eds. Springer-Verlag Press 189-95) and positional refinement in CNS, reducing the R-factor to 36.4%. A molecular replacement solution for CD28 was then found by using only regions of human CTLA-4 (from PDB 1i8l) with strong sequence homology to CD28, i.e. all the β-strands (except C') and the EF and FG loops, as a search model and by fixing the refined Fab structure. In order to avoid model bias, the refined constant regions of the Fab were replaced with the unaltered constant domains from PDB 15c8 by superposition using SHP (Stuart et al (1979) J. Mol. Biol. 134, 109-42), and the positions were fixed during refinement. The variable regions of the Fab and the CD28 monomer were refined in X-PLOR v3.851

using positional refinement followed by grouped and restrained individual B factor refinement along with manual rebuilding in O. All refinement procedures used data from 25.0-2.7Å and excluded 5% of reflections randomly selected for generation of the R_{free} data set. The anisotropy of the data was corrected for using X-PLOR and the data were sharpened for all but the last round of refinement. The current model has an R factor of 25.3% and an R_{free} of 33.4% against all data to 2.7Å. The model includes the CD28 monomer (excluding its C-terminal stalk) from residues 2 to 118, excluding residues Leu28 and Phe29, which are poorly ordered, and the Fab, but with none of the sugar chains built onto the CD28. The model has 76% of residues in the most favoured regions of the Ramachandran plot, with a further 21% in additionally allowed regions.

The structure of a CD28-superagonist antibody complex

The ligand-binding V-set IgSF domain of the CD28 monomer, solved in complex with 5.11A1 Fab', is very similar to the equivalent region of CTLA-4. Lattice contacts generate a plausible CD28 homodimer. Whilst this dimer is similar to the CTLA-4 homodimer (which is bivalent), the arrangement of the monomers in CD28 is sufficiently distinct to suggest an explanation for the apparent monovalence of CD28, i.e. the membrane proximal domains of ligands competing for each ligand binding site are likely to clash. Cryoelectron microscopic analyses show that both classes of antibodies are bivalent, ruling out aggregation-based explanations for the differential signalling effects of conventional versus superagonistic antibodies. The 5.11A1 Fab fragment binds orthogonally to the surface formed by the CC'C" strands of CD28, favouring the C'C" "edge" of the monomer. This places the two long axes of the Fabs parallel to each other and the cell surface. In contrast, the epitopes of the conventional antibodies are close to the ligand binding "top" of the homodimer.

Signalling by receptors dependent on extrinsic kinases

The existence of two classes of activating anti-CD28 antibodies, i.e. costimulatory antibodies and superagonists, greatly simplifies the analysis of signalling by this archetypal costimulatory receptor. The observation that the two antibody classes have homologous effects in two different species, and that these effects are predictable simply according to the location of their epitopes, rules out

trivial explanations for the distinct signalling properties of these antibodies, e.g. affinity differences. Instead, the receptor-triggering problem is reduced to a comparison of the structural properties of the complexes that these two types of antibodies form with CD28.

From the present crystal structure of the complex of CD28 with a superagonistic antibody, it can be deduced that an antibody-induced increase in the net phosphorylation of the cytoplasmic domain of a given cell surface receptor, due to changes in the rates of phosphorylation and dephosphorylation of it, results in the triggering of that receptor (see Figure 1). In more detail, the antibodies hold the cell surface at certain distances from an immobilizing substrate (i.e. other, Fc receptor-bearing cells, *in vivo* or plastic, *in vitro*), such that the membrane separation in the region of the immobilized antibody and receptor will differentially exclude, from the immediate vicinity of the receptor, other molecules whose extracellular domains are comparable in size or larger than CD28-antibody complexes, such as the tyrosine phosphatase, CD45. In contrast, tyrosine kinases, e.g. p56*lck*, will be unaffected because they are small and/or attached to the inner leaflet of the membrane. The result is that, overall, the phosphorylation of CD28 will be favoured over its de-phoshorylation (by CD45), with the net increase in phosphorylation amounting to receptor triggering. Superagonists are more potent than conventional antibodies because they bind epitopes close to the membrane rather than at the "top" of the molecule, leading to more efficient segregation of, e.g. CD45, and therefore a larger increase in the net phosphorylation of CD28.

The important corollary of this explanation is that antibodies that bind the membrane-proximal epitopes of the large number of other cell surface molecules not belonging to the CD28 subset of the immunoglobulin superfamily, but sharing the key signalling property of CD28-subset molecules, *i.e. a reliance on extrinsic tyrosine kinases*, for example PD-1 and BTLA, should also potently invoke the activating or inhibitory signalling properties of those molecules in precisely the same way, allowing the manipulation of cell behaviour with such antibodies.

PD-1 and BTLA

Programmed Death (PD)-1 protein modulates the responses of previously activated T- and B-cells in secondary lymphoid organs or peripheral (parenchymal) tissues. PD-1 is expressed on a subset of thymocytes and upregulated on activated T, B and myeloid cells. The PD-1 ligands, B7-H1 and B7-DC, are more widely expressed than those of CD28 family members and are induced by pro-inflammatory agents on monocytes and dendritic cells and on activated but not resting B cells. B7-DC is expressed in a variety of peripheral tissues, including heart, pancreas, lung and liver. The B and T lymphocyte attenuator (BTLA), is also expressed on activated T and B cells, but attenuates production of IL-2 after binding a different peripherally expressed B7-related protein, called B7x.

PD-1 and BTLA are structurally comparable to other members of the CD28 family only insofar as the proteins also consist of a single V-set IgSF domain supported on stalks, and the cytoplasmic domains contain immunoreceptor tyrosine-based motifs (inhibitory in these two cases). The sequences of the IgSF domains of PD-1 and BTLA indicate that these proteins are unrelated and *do not* belong to the same subset of the IgSF as CD28. Consistent with the view that PD-1 is involved in maintaining tolerance in normal T cells in the periphery, mice lacking the gene develop a variety of autoimmune-like diseases dependent on the genetic background, including lupus-like arthritis and glomerulonephritis, and have increased serum IgG3 and augmented B-cell proliferative responses to anti-IgM *in vivo*.

Activating signalling by PD-1 and BTLA, because these molecules are inhibitory, would be expected to dampen a variety of peripheral immune pathologies. Signalling of this type could be stimulated by the binding of superagonistic antibodies to the membrane proximal regions of these proteins. A set of additional molecules, each of which has inhibitory immunoreceptor tyrosine-based signalling motifs and are therefore targets for generating superagonists, is shown in Table 2.

Identifying epitopes for superagonists

The procedure is as follows. The "lower", membrane-proximal half of the membrane proximal domain of a given structure, e.g. CD28 in Figure 2A, is identified by visual inspection of the structure. Superagonistic agents bind residues in

this region. For identifying superagonistic agents in receptors closely related to the known structure, the equivalent regions are identified in an alignment of the sequence of the known structure with that of the related proteins as shown in Figure 2A. To identify the epitopes of superagonistic antibodies in other molecules that have the requisite signalling properties but for which there is no structure, e.g. PD-1 in Figure 2B, a structural model is identified by alignment of the sequence with that of the most similar molecule of known structure in the Protein Data Bank (in the example in Figure 2B, the variable domain of the Ig kappa chain is the structure with the most similar sequence to PD-1). The "lower", membrane proximal half of this domain is highlighted on the structure by visual inspection and the equivalent regions are identified in the sequence alignment. To screen for superagonists, the second and third residues "down" (i.e. toward the membrane) in the marked epitopes shown in parts A and B are identified as shown in Figures 2C and 2D. These residues, singly or together preferably form at least part of the epitopes of antibodies or other superagonistic agents, as binding to these residues will require that the binding of the agent is parallel with the cell membrane. These residues can therefore be mutated in proteins used for screening the superagonistic agents (i.e. agents binding to the unmutated protein but not the mutated protein, should be superagonistic).

Table 1

CD28 family superagonistic epitopes

Epitopes are named according to the strands from which they derive.

Protein	*A'*	*B*	*C-C'*	*C"-D*	*E*	*F*	*G*
hCD28	SPMLV	AVNLS	SLHKGLDSAVEVCV	VYSKTGFNCDG	FYLQN	TDIYFC	NGTIIHV
hCTLA-4	PAVVL	GIASFV	TVLRQADSQVTEVCA	FLDDSICTG	LTIQG	TGLYIC	NGTQIYV
hICOS	YEMFI	GVQIL	QLLKGGQILCD	VSIKSLKFCHS	FFLYN	ANYYFC	TGGYLHI

PD-1 and BTLA superagonistic epitopès

Protein	*A*	*B*	*C-C'*	*C"-D*	*E*	*F*	*G*
hPD-1	PALLVV	DNATF	RMSPSNQTDK	QPGQDCRFR	MSVVR	NDSGTY	LRAELR
hBTLA	QSEHSI	DPFEL	KLNG	QTSWK	LHFEP	NDNGSY	TTLYVT

Table 3

Protein	*Sequence*
hCD28	GNYSQQLQVYSKTGF
hCTLA-4	YMMGNELTFLDDS
hICOS	KTKGSGNTVSIKSLK
hPD-1	LAAFPEDRSQPGQDCR

Table 2

Targets of inhibitory superagonist antibodies

Receptor	Chromosome	Expression	no. of ITIMs
FcRIIB	1q23-24	B, myeloid, mast	1
PILR	7q22	Myeloid	2
CD72	9p	B	2
CD5	11q13	T, subset B	1
MAFA	12p12-13	Myeloid, mast, NK	1
NKG2A	12p13.1-13.2	NK, T	2
CD31	17q23	Myeloid, etc	1
CMRF35H	17q24	Leukocytes	3
CD22	19q13.1	B	4
CD66a	19q13.2	Granulocytes, etc	2
CD66d	19q13.2	Granulocytes	1
CD33	19q13.3	Myeloid	1
SIGLEC5	19q13.3	Myeloid	1
SIGLEC6	19q13.3	B cells, myeloid	1
SIGLEC7	19q13.3	NK, myeloid, etc	1
ILT2,3,4,5	19q13.4	Myeloid, B, etc	4
LIR8	19q13.4	Myeloid, B, etc	4
LAIR-1	19q13.4	Leukocytes	2
KIR2DL	19q13.4	NK, T	2
KIR3DL	19q13.4	NK, T	2
SIRP	20p13	Myeloid, etc	2

Table 4

Co-ordinates of the CD28/5.11A1 crystal structure

```
REMARK FILENAME="/mnt/safe6/ed/cd28/cd28_all/xplor/ref18/positionaln3.pdb"
REMARK  R= 0.251035 from 25 to 2.7
REMARK DATE:09-Jan-04  09:48:19       created by user: robert
ATOM      1  CB  ASP     1     122.280  49.781  38.327  1.00 64.18       L
ATOM      2  CG  ASP     1     123.319  49.071  37.463  1.00 67.78       L
ATOM      3  OD1 ASP     1     122.934  48.417  36.470  1.00 66.82       L
ATOM      4  OD2 ASP     1     124.524  49.162  37.779  1.00 54.04       L
ATOM      5  C   ASP     1     122.104  52.265  38.005  1.00 50.51       L
ATOM      6  O   ASP     1     122.541  53.057  37.163  1.00 41.52       L
ATOM      7  N   ASP     1     121.674  50.711  36.112  1.00 37.53       L
ATOM      8  CA  ASP     1     121.547  50.905  37.579  1.00 50.29       L
ATOM      9  N   ILE     2     122.073  52.527  39.314  1.00 51.24       L
ATOM     10  CA  ILE     2     122.567  53.783  39.890  1.00 50.84       L
ATOM     11  CB  ILE     2     121.842  54.094  41.240  1.00 22.62       L
ATOM     12  CG2 ILE     2     122.278  55.454  41.781  1.00 18.55       L
ATOM     13  CG1 ILE     2     120.327  54.081  41.022  1.00 30.61       L
ATOM     14  CD1 ILE     2     119.510  54.521  42.229  1.00 31.86       L
ATOM     15  C   ILE     2     124.086  53.714  40.119  1.00 54.91       L
ATOM     16  O   ILE     2     124.645  52.630  40.283  1.00 55.68       L
ATOM     17  N   GLN     3     124.749  54.869  40.136  1.00 58.93       L
ATOM     18  CA  GLN     3     126.204  54.923  40.322  1.00 56.95       L
ATOM     19  CB  GLN     3     126.847  55.679  39.145  1.00 60.02       L
ATOM     20  CG  GLN     3     127.010  54.851  37.863  1.00 63.51       L
ATOM     21  CD  GLN     3     126.479  55.552  36.615  1.00 65.36       L
ATOM     22  OE1 GLN     3     127.024  56.568  36.174  1.00 62.07       L
ATOM     23  NE2 GLN     3     125.412  55.003  36.038  1.00 72.37       L
ATOM     24  C   GLN     3     126.635  55.564  41.650  1.00 51.69       L
ATOM     25  O   GLN     3     126.179  56.649  42.004  1.00 54.63       L
ATOM     26  N   MET     4     127.522  54.889  42.376  1.00 42.42       L
ATOM     27  CA  MET     4     128.005  55.392  43.660  1.00 37.64       L
ATOM     28  CB  MET     4     128.066  54.248  44.671  1.00 54.55       L
ATOM     29  CG  MET     4     127.037  54.319  45.783  1.00 56.74       L
ATOM     30  SD  MET     4     125.360  54.633  45.189  1.00 76.06       L
ATOM     31  CE  MET     4     125.083  56.269  45.843  1.00 68.01       L
ATOM     32  C   MET     4     129.392  56.008  43.507  1.00 44.16       L
ATOM     33  O   MET     4     130.358  55.311  43.176  1.00 35.72       L
ATOM     34  N   ASN     5     129.496  57.310  43.750  1.00 50.40       L
ATOM     35  CA  ASN     5     130.779  57.996  43.624  1.00 58.90       L
ATOM     36  CB  ASN     5     130.703  59.060  42.521  1.00 67.94       L
ATOM     37  CG  ASN     5     130.113  58.517  41.233  1.00 59.91       L
ATOM     38  OD1 ASN     5     130.783  57.811  40.474  1.00 49.08       L
ATOM     39  ND2 ASN     5     128.848  58.839  40.981  1.00 56.43       L
ATOM     40  C   ASN     5     131.191  58.643  44.939  1.00 46.55       L
ATOM     41  O   ASN     5     130.612  59.637  45.368  1.00 40.94       L
ATOM     42  N   GLN     6     132.202  58.076  45.577  1.00 33.77       L
ATOM     43  CA  GLN     6     132.661  58.607  46.846  1.00 36.85       L
ATOM     44  CB  GLN     6     133.257  57.476  47.679  1.00 24.74       L
ATOM     45  CG  GLN     6     132.395  56.218  47.684  1.00 19.84       L
ATOM     46  CD  GLN     6     132.393  55.524  49.029  1.00 27.56       L
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ATOM	49	C	GLN	6	133.677	59.725	46.647	1.00 43.10	L
ATOM	50	O	GLN	6	134.328	59.800	45.608	1.00 55.89	L
ATOM	51	N	SER	7	133.807	60.598	47.641	1.00 47.45	L
ATOM	52	CA	SER	7	134.736	61.714	47.543	1.00 54.98	L
ATOM	53	CB	SER	7	134.285	62.858	48.469	1.00 70.71	L
ATOM	54	OG	SER	7	135.232	63.917	48.514	1.00 61.37	L
ATOM	55	C	SER	7	136.187	61.304	47.812	1.00 57.75	L
ATOM	56	O	SER	7	136.828	60.732	46.928	1.00 68.97	L
ATOM	57	N	PRO	8	136.722	61.540	49.029	1.00 48.65	L
ATOM	58	CD	PRO	8	136.250	62.116	50.300	1.00 21.82	L
ATOM	59	CA	PRO	8	138.118	61.109	49.140	1.00 47.63	L
ATOM	60	CB	PRO	8	138.515	61.533	50.559	1.00 29.91	L
ATOM	61	CG	PRO	8	137.525	62.576	50.933	1.00 26.41	L
ATOM	62	C	PRO	8	138.358	59.622	48.893	1.00 48.77	L
ATOM	63	O	PRO	8	137.820	58.772	49.604	1.00 63.86	L
ATOM	64	N	SER	9	139.161	59.318	47.876	1.00 33.02	L
ATOM	65	CA	SER	9	139.500	57.939	47.548	1.00 32.48	L
ATOM	66	CB	SER	9	140.151	57.864	46.169	1.00 30.85	L
ATOM	67	OG	SER	9	141.554	57.812	46.286	1.00 25.75	L
ATOM	68	C	SER	9	140.469	57.407	48.602	1.00 30.90	L
ATOM	69	O	SER	9	140.661	56.197	48.737	1.00 32.96	L
ATOM	70	N	SER	10	141.076	58.333	49.340	1.00 29.68	L
ATOM	71	CA	SER	10	142.022	58.018	50.412	1.00 35.34	L
ATOM	72	CB	SER	10	143.387	57.645	49.831	1.00 49.82	L
ATOM	73	OG	SER	10	144.392	58.538	50.289	1.00 81.38	L
ATOM	74	C	SER	10	142.161	59.254	51.308	1.00 31.04	L
ATOM	75	O	SER	10	141.964	60.379	50.839	1.00 35.88	L
ATOM	76	N	LEU	11	142.502	59.056	52.582	1.00 27.16	L
ATOM	77	CA	LEU	11	142.634	60.181	53.498	1.00 24.50	L
ATOM	78	CB	LEU	11	141.258	60.780	53.780	1.00 47.56	L
ATOM	79	CG	LEU	11	141.120	61.488	55.134	1.00 57.17	L
ATOM	80	CD1	LEU	11	141.752	62.878	55.063	1.00 65.58	L
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ATOM	105	CD1	LEU	15	144.709	65.353	67.956	1.00	45.12	L
ATOM	106	CD2	LEU	15	147.023	64.425	67.671	1.00	46.79	L
ATOM	107	C	LEU	15	143.071	61.968	66.666	1.00	63.00	L
ATOM	108	O	LEU	15	142.440	61.062	66.125	1.00	71.25	L
ATOM	109	N	GLY	16	142.495	63.029	67.229	1.00	61.62	L
ATOM	110	CA	GLY	16	141.052	63.182	67.225	1.00	58.47	L
ATOM	111	C	GLY	16	140.588	64.176	66.177	1.00	62.05	L
ATOM	112	O	GLY	16	139.827	65.094	66.481	1.00	59.73	L
ATOM	113	N	ASP	17	141.052	63.991	64.942	1.00	62.73	L
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ATOM	117	OD1	ASP	17	142.467	66.992	62.682	1.00	51.84	L
ATOM	118	OD2	ASP	17	141.762	66.116	60.795	1.00	64.45	L
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ATOM	121	N	THR	18	138.425	65.448	63.150	1.00	39.55	L
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ATOM	123	CB	THR	18	136.089	66.238	63.211	1.00	39.72	L
ATOM	124	OG1	THR	18	136.155	66.250	64.644	1.00	36.21	L
ATOM	125	CG2	THR	18	134.668	65.918	62.774	1.00	28.85	L
ATOM	126	C	THR	18	136.967	65.172	61.132	1.00	39.85	L
ATOM	127	O	THR	18	136.590	66.167	60.522	1.00	51.97	L
ATOM	128	N	ILE	19	137.289	64.035	60.521	1.00	38.56	L
ATOM	129	CA	ILE	19	137.233	63.881	59.065	1.00	40.49	L
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ATOM	131	CG2	ILE	19	139.334	62.545	59.144	1.00	53.54	L
ATOM	132	CG1	ILE	19	137.148	61.373	59.161	1.00	31.99	L
ATOM	133	CD1	ILE	19	136.020	60.889	58.260	1.00	27.22	L
ATOM	134	C	ILE	19	135.811	63.857	58.519	1.00	41.63	L
ATOM	135	O	ILE	19	134.850	63.825	59.284	1.00	48.28	L
ATOM	136	N	THR	20	135.690	63.839	57.191	1.00	41.74	L
ATOM	137	CA	THR	20	134.388	63.814	56.517	1.00	46.28	L
ATOM	138	CB	THR	20	133.761	65.246	56.473	1.00	55.85	L
ATOM	139	OG1	THR	20	132.666	65.316	57.396	1.00	68.15	L
ATOM	140	CG2	THR	20	133.260	65.592	55.073	1.00	57.90	L
ATOM	141	C	THR	20	134.516	63.260	55.090	1.00	34.62	L
ATOM	142	O	THR	20	135.433	63.620	54.351	1.00	35.05	L
ATOM	143	N	ILE	21	133.592	62.385	54.706	1.00	27.66	L
ATOM	144	CA	ILE	21	133.613	61.793	53.371	1.00	40.68	L
ATOM	145	CB	ILE	21	133.646	60.260	53.466	1.00	45.17	L
ATOM	146	CG2	ILE	21	133.946	59.641	52.110	1.00	58.28	L
ATOM	147	CG1	ILE	21	134.757	59.849	54.432	1.00	37.17	L
ATOM	148	CD1	ILE	21	134.556	58.489	55.038	1.00	30.25	L
ATOM	149	C	ILE	21	132.412	62.266	52.552	1.00	41.14	L
ATOM	150	O	ILE	21	131.706	63.173	52.978	1.00	52.31	L
ATOM	151	N	THR	22	132.176	61.669	51.386	1.00	37.16	L
ATOM	152	CA	THR	22	131.069	62.096	50.533	1.00	30.97	L

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ATOM    153  CB  THR    22      131.426  63.392  49.791  1.00 33.17      L
ATOM    154  OG1 THR    22      131.754  64.417  50.736  1.00 20.87      L
ATOM    155  CG2 THR    22      130.270  63.832  48.913  1.00 26.45      L
ATOM    156  C   THR    22      130.703  61.078  49.462  1.00 45.82      L
ATOM    157  O   THR    22      131.563  60.656  48.694  1.00 54.24      L
ATOM    158  N   CYS    23      129.430  60.705  49.381  1.00 50.07      L
ATOM    159  CA  CYS    23      129.004  59.746  48.363  1.00 63.67      L
ATOM    160  C   CYS    23      127.790  60.230  47.570  1.00 68.93      L
ATOM    161  O   CYS    23      126.651  60.017  47.983  1.00 85.32      L
ATOM    162  CB  CYS    23      128.682  58.384  48.998  1.00 53.28      L
ATOM    163  SG  CYS    23      127.931  57.193  47.829  1.00 60.78      L
ATOM    164  N   HIS    24      128.035  60.874  46.432  1.00 62.30      L
ATOM    165  CA  HIS    24      126.958  61.376  45.581  1.00 55.79      L
ATOM    166  CB  HIS    24      127.438  62.585  44.766  1.00 66.11      L
ATOM    167  CG  HIS    24      127.210  63.903  45.443  1.00 94.47      L
ATOM    168  CD2 HIS    24      127.360  64.280  46.736  1.00100.00      L
ATOM    169  ND1 HIS    24      126.760  65.020  44.771  1.00 99.99      L
ATOM    170  CE1 HIS    24      126.647  66.029  45.618  1.00 96.64      L
ATOM    171  NE2 HIS    24      127.005  65.605  46.818  1.00100.00      L
ATOM    172  C   HIS    24      126.456  60.282  44.636  1.00 53.07      L
ATOM    173  O   HIS    24      127.232  59.442  44.174  1.00 50.30      L
ATOM    174  N   ALA    25      125.154  60.295  44.359  1.00 48.84      L
ATOM    175  CA  ALA    25      124.546  59.309  43.470  1.00 62.65      L
ATOM    176  CB  ALA    25      123.334  58.678  44.149  1.00 50.68      L
ATOM    177  C   ALA    25      124.135  59.923  42.124  1.00 71.88      L
ATOM    178  O   ALA    25      123.769  61.098  42.053  1.00 69.35      L
ATOM    179  N   SER    26      124.196  59.120  41.061  1.00 75.26      L
ATOM    180  CA  SER    26      123.833  59.585  39.724  1.00 65.26      L
ATOM    181  CB  SER    26      123.832  58.421  38.724  1.00 51.17      L
ATOM    182  OG  SER    26      122.779  57.511  38.981  1.00 34.32      L
ATOM    183  C   SER    26      122.466  60.247  39.755  1.00 68.59      L
ATOM    184  O   SER    26      122.329  61.422  39.413  1.00 70.72      L
ATOM    185  N   GLN    27      121.452  59.490  40.163  1.00 70.13      L
ATOM    186  CA  GLN    27      120.103  60.030  40.253  1.00 61.69      L
ATOM    187  CB  GLN    27      119.171  59.312  39.273  1.00 49.30      L
ATOM    188  CG  GLN    27      119.385  57.827  39.181  1.00 40.46      L
ATOM    189  CD  GLN    27      118.295  57.064  39.899  1.00 47.76      L
ATOM    190  OE1 GLN    27      117.623  57.601  40.785  1.00 42.99      L
ATOM    191  NE2 GLN    27      118.110  55.806  39.523  1.00 37.30      L
ATOM    192  C   GLN    27      119.568  59.937  41.690  1.00 59.24      L
ATOM    193  O   GLN    27      120.323  59.658  42.623  1.00 58.99      L
ATOM    194  N   ASN    28      118.268  60.160  41.859  1.00 54.50      L
ATOM    195  CA  ASN    28      117.628  60.162  43.176  1.00 48.17      L
ATOM    196  CB  ASN    28      116.286  60.871  43.058  1.00 28.87      L
ATOM    197  CG  ASN    28      115.671  61.159  44.397  1.00 25.62      L
ATOM    198  OD1 ASN    28      116.346  61.607  45.321  1.00 43.90      L
ATOM    199  ND2 ASN    28      114.383  60.894  44.518  1.00 47.96      L
ATOM    200  C   ASN    28      117.422  58.833  43.917  1.00 53.06      L
ATOM    201  O   ASN    28      116.727  57.939  43.431  1.00 50.76      L
ATOM    202  N   ILE    29      118.011  58.727  45.112  1.00 49.78      L
ATOM    203  CA  ILE    29      117.887  57.528  45.951  1.00 48.76      L
ATOM    204  CB  ILE    29      119.278  56.900  46.275  1.00 38.91      L
ATOM    205  CG2 ILE    29      119.870  56.276  45.028  1.00 38.09      L
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ATOM	206	CG1	ILE	29	120.235	57.965	46.801	1.00	35.93	L
ATOM	207	CD1	ILE	29	121.444	57.381	47.498	1.00	24.13	L
ATOM	208	C	ILE	29	117.176	57.883	47.270	1.00	49.01	L
ATOM	209	O	ILE	29	117.043	57.056	48.183	1.00	28.15	L
ATOM	210	N	TYR	30	116.720	59.127	47.358	1.00	51.14	L
ATOM	211	CA	TYR	30	116.018	59.610	48.536	1.00	40.55	L
ATOM	212	CB	TYR	30	114.708	58.834	48.708	1.00	51.35	L
ATOM	213	CG	TYR	30	113.856	58.829	47.452	1.00	50.82	L
ATOM	214	CD1	TYR	30	112.914	59.832	47.218	1.00	57.07	L
ATOM	215	CE1	TYR	30	112.164	59.859	46.044	1.00	48.93	L
ATOM	216	CD2	TYR	30	114.023	57.846	46.477	1.00	54.94	L
ATOM	217	CE2	TYR	30	113.280	57.863	45.302	1.00	54.60	L
ATOM	218	CZ	TYR	30	112.354	58.872	45.089	1.00	54.60	L
ATOM	219	OH	TYR	30	111.641	58.906	43.914	1.00	46.05	L
ATOM	220	C	TYR	30	116.867	59.539	49.800	1.00	36.49	L
ATOM	221	O	TYR	30	117.747	60.377	50.007	1.00	36.08	L
ATOM	222	N	VAL	31	116.607	58.553	50.650	1.00	27.22	L
ATOM	223	CA	VAL	31	117.363	58.421	51.889	1.00	25.88	L
ATOM	224	CB	VAL	31	116.518	58.771	53.103	1.00	24.60	L
ATOM	225	CG1	VAL	31	115.741	60.036	52.827	1.00	39.18	L
ATOM	226	CG2	VAL	31	115.581	57.607	53.441	1.00	11.43	L
ATOM	227	C	VAL	31	117.815	57.001	52.068	1.00	30.74	L
ATOM	228	O	VAL	31	118.333	56.637	53.125	1.00	32.26	L
ATOM	229	N	TRP	32	117.612	56.202	51.028	1.00	34.27	L
ATOM	230	CA	TRP	32	117.978	54.796	51.064	1.00	29.66	L
ATOM	231	CB	TRP	32	117.016	53.999	50.173	1.00	37.57	L
ATOM	232	CG	TRP	32	115.569	54.306	50.497	1.00	45.16	L
ATOM	233	CD2	TRP	32	114.858	53.921	51.677	1.00	28.80	L
ATOM	234	CE2	TRP	32	113.571	54.493	51.597	1.00	36.20	L
ATOM	235	CE3	TRP	32	115.183	53.149	52.798	1.00	25.93	L
ATOM	236	CD1	TRP	32	114.706	55.074	49.765	1.00	47.52	L
ATOM	237	NE1	TRP	32	113.504	55.193	50.418	1.00	36.87	L
ATOM	238	CZ2	TRP	32	112.610	54.319	52.591	1.00	25.25	L
ATOM	239	CZ3	TRP	32	114.229	52.978	53.788	1.00	21.98	L
ATOM	240	CH2	TRP	32	112.954	53.563	53.677	1.00	2.00	L
ATOM	241	C	TRP	32	119.419	54.578	50.645	1.00	17.38	L
ATOM	242	O	TRP	32	119.697	54.267	49.491	1.00	20.83	L
ATOM	243	N	LEU	33	120.332	54.750	51.599	1.00	19.97	L
ATOM	244	CA	LEU	33	121.763	54.570	51.357	1.00	39.54	L
ATOM	245	CB	LEU	33	122.352	55.790	50.642	1.00	44.19	L
ATOM	246	CG	LEU	33	123.876	55.803	50.500	1.00	34.32	L
ATOM	247	CD1	LEU	33	124.252	56.190	49.078	1.00	27.47	L
ATOM	248	CD2	LEU	33	124.479	56.774	51.515	1.00	19.98	L
ATOM	249	C	LEU	33	122.481	54.371	52.685	1.00	39.15	L
ATOM	250	O	LEU	33	122.345	55.182	53.595	1.00	42.09	L
ATOM	251	N	ASN	34	123.262	53.303	52.785	1.00	38.96	L
ATOM	252	CA	ASN	34	123.969	53.008	54.017	1.00	33.81	L
ATOM	253	CB	ASN	34	123.635	51.588	54.470	1.00	29.67	L
ATOM	254	CG	ASN	34	122.323	51.104	53.908	1.00	18.96	L
ATOM	255	OD1	ASN	34	121.252	51.484	54.384	1.00	22.09	L
ATOM	256	ND2	ASN	34	122.396	50.269	52.883	1.00	22.68	L
ATOM	257	C	ASN	34	125.465	53.162	53.889	1.00	27.35	L
ATOM	258	O	ASN	34	125.996	53.215	52.785	1.00	25.60	L

ATOM	259	N	TRP	35	126.125	53.242	55.041	1.00	31.00	L
ATOM	260	CA	TRP	35	127.574	53.380	55.122	1.00	37.04	L
ATOM	261	CB	TRP	35	127.942	54.663	55.871	1.00	44.59	L
ATOM	262	CG	TRP	35	127.725	55.956	55.099	1.00	50.73	L
ATOM	263	CD2	TRP	35	128.624	56.560	54.155	1.00	39.25	L
ATOM	264	CE2	TRP	35	128.042	57.776	53.738	1.00	36.81	L
ATOM	265	CE3	TRP	35	129.868	56.194	53.621	1.00	29.95	L
ATOM	266	CD1	TRP	35	126.660	56.808	55.208	1.00	38.58	L
ATOM	267	NE1	TRP	35	126.843	57.900	54.397	1.00	40.14	L
ATOM	268	CZ2	TRP	35	128.655	58.629	52.812	1.00	36.05	L
ATOM	269	CZ3	TRP	35	130.479	57.045	52.698	1.00	39.51	L
ATOM	270	CH2	TRP	35	129.871	58.247	52.307	1.00	31.94	L
ATOM	271	C	TRP	35	128.118	52.168	55.885	1.00	32.85	L
ATOM	272	O	TRP	35	127.499	51.715	56.849	1.00	24.56	L
ATOM	273	N	TYR	36	129.271	51.654	55.451	1.00	29.03	L
ATOM	274	CA	TYR	36	129.894	50.488	56.080	1.00	24.01	L
ATOM	275	CB	TYR	36	129.760	49.256	55.178	1.00	24.57	L
ATOM	276	CG	TYR	36	128.341	48.844	54.845	1.00	36.78	L
ATOM	277	CD1	TYR	36	127.740	47.745	55.469	1.00	45.66	L
ATOM	278	CE1	TYR	36	126.439	47.350	55.138	1.00	29.26	L
ATOM	279	CD2	TYR	36	127.606	49.536	53.885	1.00	43.28	L
ATOM	280	CE2	TYR	36	126.314	49.153	53.550	1.00	29.25	L
ATOM	281	CZ	TYR	36	125.736	48.064	54.174	1.00	33.13	L
ATOM	282	OH	TYR	36	124.458	47.709	53.810	1.00	29.39	L
ATOM	283	C	TYR	36	131.379	50.683	56.401	1.00	34.79	L
ATOM	284	O	TYR	36	132.060	51.530	55.813	1.00	31.84	L
ATOM	285	N	GLN	37	131.876	49.880	57.337	1.00	38.75	L
ATOM	286	CA	GLN	37	133.278	49.923	57.731	1.00	41.58	L
ATOM	287	CB	GLN	37	133.406	50.342	59.199	1.00	30.71	L
ATOM	288	CG	GLN	37	134.852	50.495	59.704	1.00	37.19	L
ATOM	289	CD	GLN	37	134.989	50.332	61.222	1.00	25.39	L
ATOM	290	OE1	GLN	37	134.904	49.222	61.753	1.00	36.25	L
ATOM	291	NE2	GLN	37	135.209	51.439	61.918	1.00	22.58	L
ATOM	292	C	GLN	37	133.884	48.528	57.528	1.00	39.79	L
ATOM	293	O	GLN	37	133.319	47.526	57.975	1.00	29.52	L
ATOM	294	N	GLN	38	135.022	48.465	56.839	1.00	29.65	L
ATOM	295	CA	GLN	38	135.695	47.195	56.596	1.00	31.00	L
ATOM	296	CB	GLN	38	135.471	46.738	55.155	1.00	37.06	L
ATOM	297	CG	GLN	38	136.385	45.597	54.724	1.00	37.85	L
ATOM	298	CD	GLN	38	135.973	44.992	53.401	1.00	51.91	L
ATOM	299	OE1	GLN	38	135.856	45.693	52.399	1.00	56.78	L
ATOM	300	NE2	GLN	38	135.753	43.683	53.390	1.00	47.92	L
ATOM	301	C	GLN	38	137.192	47.285	56.860	1.00	23.61	L
ATOM	302	O	GLN	38	137.952	47.630	55.963	1.00	30.06	L
ATOM	303	N	LYS	39	137.610	46.969	58.086	1.00	29.96	L
ATOM	304	CA	LYS	39	139.021	47.022	58.464	1.00	20.79	L
ATOM	305	CB	LYS	39	139.204	46.606	59.925	1.00	26.60	L
ATOM	306	CG	LYS	39	139.493	47.764	60.884	1.00	31.56	L
ATOM	307	CD	LYS	39	138.268	48.135	61.727	1.00	24.64	L
ATOM	308	CE	LYS	39	138.633	48.266	63.205	1.00	28.08	L
ATOM	309	NZ	LYS	39	137.922	47.293	64.094	1.00	32.42	L
ATOM	310	C	LYS	39	139.831	46.103	57.566	1.00	39.66	L
ATOM	311	O	LYS	39	139.272	45.238	56.886	1.00	49.56	L

ATOM	312	N	PRO	40	141.161	46.283	57.533	1.00 54.59	L
ATOM	313	CD	PRO	40	141.957	47.289	58.266	1.00 52.22	L
ATOM	314	CA	PRO	40	142.007	45.434	56.686	1.00 54.43	L
ATOM	315	CB	PRO	40	143.431	45.874	57.037	1.00 40.87	L
ATOM	316	CG	PRO	40	143.274	47.280	57.530	1.00 36.77	L
ATOM	317	C	PRO	40	141.792	43.935	56.895	1.00 53.33	L
ATOM	318	O	PRO	40	141.962	43.429	58.003	1.00 48.18	L
ATOM	319	N	GLY	41	141.403	43.244	55.825	1.00 56.47	L
ATOM	320	CA	GLY	41	141.178	41.807	55.889	1.00 46.36	L
ATOM	321	C	GLY	41	140.030	41.378	56.783	1.00 47.51	L
ATOM	322	O	GLY	41	139.890	40.195	57.103	1.00 42.82	L
ATOM	323	N	ASN	42	139.198	42.336	57.177	1.00 39.14	L
ATOM	324	CA	ASN	42	138.061	42.049	58.044	1.00 33.16	L
ATOM	325	CB	ASN	42	138.031	43.041	59.210	1.00 25.23	L
ATOM	326	CG	ASN	42	137.400	42.453	60.451	1.00 34.65	L
ATOM	327	OD1	ASN	42	136.876	41.338	60.416	1.00 42.65	L
ATOM	328	ND2	ASN	42	137.444	43.194	61.558	1.00 15.22	L
ATOM	329	C	ASN	42	136.743	42.123	57.287	1.00 36.43	L
ATOM	330	O	ASN	42	136.726	42.413	56.092	1.00 31.10	L
ATOM	331	N	ILE	43	135.648	41.852	57.993	1.00 46.04	L
ATOM	332	CA	ILE	43	134.310	41.894	57.407	1.00 55.78	L
ATOM	333	CB	ILE	43	133.340	40.879	58.089	1.00 55.57	L
ATOM	334	CG2	ILE	43	134.038	39.554	58.323	1.00 47.83	L
ATOM	335	CG1	ILE	43	132.828	41.439	59.423	1.00 61.00	L
ATOM	336	CD1	ILE	43	131.656	40.662	60.017	1.00 68.36	L
ATOM	337	C	ILE	43	133.726	43.298	57.555	1.00 63.83	L
ATOM	338	O	ILE	43	134.037	44.010	58.513	1.00 72.13	L
ATOM	339	N	PRO	44	132.881	43.720	56.605	1.00 56.85	L
ATOM	340	CD	PRO	44	132.444	42.988	55.402	1.00 59.76	L
ATOM	341	CA	PRO	44	132.282	45.052	56.681	1.00 47.82	L
ATOM	342	CB	PRO	44	131.893	45.349	55.242	1.00 52.95	L
ATOM	343	CG	PRO	44	131.590	43.997	54.665	1.00 66.17	L
ATOM	344	C	PRO	44	131.079	45.064	57.613	1.00 41.70	L
ATOM	345	O	PRO	44	130.160	44.258	57.460	1.00 35.22	L
ATOM	346	N	LYS	45	131.095	45.982	58.575	1.00 33.96	L
ATOM	347	CA	LYS	45	130.010	46.106	59.537	1.00 39.65	L
ATOM	348	CB	LYS	45	130.576	46.225	60.953	1.00 36.05	L
ATOM	349	CG	LYS	45	132.096	46.222	61.012	1.00 44.96	L
ATOM	350	CD	LYS	45	132.651	45.003	61.752	1.00 53.54	L
ATOM	351	CE	LYS	45	134.060	45.269	62.297	1.00 58.35	L
ATOM	352	NZ	LYS	45	134.818	44.011	62.586	1.00 46.04	L
ATOM	353	C	LYS	45	129.162	47.329	59.218	1.00 37.07	L
ATOM	354	O	LYS	45	129.686	48.369	58.817	1.00 37.21	L
ATOM	355	N	LEU	46	127.850	47.205	59.385	1.00 22.26	L
ATOM	356	CA	LEU	46	126.969	48.326	59.107	1.00 28.40	L
ATOM	357	CB	LEU	46	125.505	47.904	59.239	1.00 32.99	L
ATOM	358	CG	LEU	46	124.429	48.756	58.541	1.00 40.56	L
ATOM	359	CD1	LEU	46	123.264	48.947	59.508	1.00 53.21	L
ATOM	360	CD2	LEU	46	124.987	50.114	58.096	1.00 41.53	L
ATOM	361	C	LEU	46	127.268	49.459	60.079	1.00 27.28	L
ATOM	362	O	LEU	46	127.353	49.247	61.286	1.00 40.74	L
ATOM	363	N	LEU	47	127.414	50.666	59.548	1.00 31.54	L
ATOM	364	CA	LEU	47	127.719	51.837	60.362	1.00 26.31	L

ATOM	365	CB	LEU	47	128.915	52.562	59.755	1.00 25.09	L
ATOM	366	CG	LEU	47	130.100	52.926	60.636	1.00 16.21	L
ATOM	367	CD1	LEU	47	130.727	51.676	61.198	1.00 17.63	L
ATOM	368	CD2	LEU	47	131.094	53.701	59.805	1.00 2.00	L
ATOM	369	C	LEU	47	126.535	52.807	60.449	1.00 34.89	L
ATOM	370	O	LEU	47	126.190	53.282	61.535	1.00 26.31	L
ATOM	371	N	ILE	48	125.934	53.100	59.293	1.00 44.65	L
ATOM	372	CA	ILE	48	124.794	54.018	59.187	1.00 34.33	L
ATOM	373	CB	ILE	48	125.251	55.439	58.788	1.00 24.64	L
ATOM	374	CG2	ILE	48	124.145	56.146	58.008	1.00 29.43	L
ATOM	375	CG1	ILE	48	125.591	56.253	60.033	1.00 28.98	L
ATOM	376	CD1	ILE	48	126.967	56.866	59.993	1.00 25.03	L
ATOM	377	C	ILE	48	123.775	53.576	58.133	1.00 29.31	L
ATOM	378	O	ILE	48	124.113	53.411	56.962	1.00 40.59	L
ATOM	379	N	TYR	49	122.527	53.405	58.547	1.00 15.91	L
ATOM	380	CA	TYR	49	121.485	53.018	57.613	1.00 21.27	L
ATOM	381	CB	TYR	49	120.762	51.748	58.087	1.00 36.34	L
ATOM	382	CG	TYR	49	119.779	51.925	59.231	1.00 35.16	L
ATOM	383	CD1	TYR	49	118.408	52.066	58.986	1.00 25.01	L
ATOM	384	CE1	TYR	49	117.498	52.216	60.028	1.00 28.72	L
ATOM	385	CD2	TYR	49	120.214	51.934	60.560	1.00 28.85	L
ATOM	386	CE2	TYR	49	119.308	52.084	61.614	1.00 30.37	L
ATOM	387	CZ	TYR	49	117.953	52.228	61.340	1.00 42.99	L
ATOM	388	OH	TYR	49	117.048	52.410	62.370	1.00 55.09	L
ATOM	389	C	TYR	49	120.510	54.172	57.486	1.00 24.72	L
ATOM	390	O	TYR	49	120.451	55.037	58.356	1.00 26.69	L
ATOM	391	N	LYS	50	119.762	54.189	56.392	1.00 25.34	L
ATOM	392	CA	LYS	50	118.786	55.241	56.132	1.00 19.61	L
ATOM	393	CB	LYS	50	117.611	55.134	57.108	1.00 42.59	L
ATOM	394	CG	LYS	50	116.426	54.345	56.566	1.00 36.91	L
ATOM	395	CD	LYS	50	115.124	55.118	56.723	1.00 40.28	L
ATOM	396	CE	LYS	50	114.289	54.568	57.865	1.00 33.03	L
ATOM	397	NZ	LYS	50	112.829	54.799	57.659	1.00 38.05	L
ATOM	398	C	LYS	50	119.368	56.645	56.192	1.00 22.01	L
ATOM	399	O	LYS	50	118.697	57.575	56.623	1.00 30.12	L
ATOM	400	N	ALA	51	120.622	56.790	55.779	1.00 32.92	L
ATOM	401	CA	ALA	51	121.275	58.094	55.749	1.00 27.76	L
ATOM	402	CB	ALA	51	120.346	59.117	55.100	1.00 14.79	L
ATOM	403	C	ALA	51	121.787	58.647	57.073	1.00 25.18	L
ATOM	404	O	ALA	51	122.949	59.026	57.173	1.00 28.58	L
ATOM	405	N	SER	52	120.927	58.714	58.081	1.00 22.15	L
ATOM	406	CA	SER	52	121.347	59.270	59.362	1.00 19.39	L
ATOM	407	CB	SER	52	120.690	60.632	59.599	1.00 25.09	L
ATOM	408	OG	SER	52	120.199	61.188	58.390	1.00 53.81	L
ATOM	409	C	SER	52	121.021	58.369	60.518	1.00 20.68	L
ATOM	410	O	SER	52	121.232	58.729	61.674	1.00 23.62	L
ATOM	411	N	ASN	53	120.497	57.194	60.209	1.00 25.87	L
ATOM	412	CA	ASN	53	120.157	56.253	61.254	1.00 27.39	L
ATOM	413	CB	ASN	53	118.992	55.387	60.811	1.00 27.54	L
ATOM	414	CG	ASN	53	117.668	55.895	61.323	1.00 28.84	L
ATOM	415	OD1	ASN	53	116.619	55.656	60.729	1.00 26.55	L
ATOM	416	ND2	ASN	53	117.713	56.607	62.450	1.00 36.37	L
ATOM	417	C	ASN	53	121.366	55.402	61.592	1.00 25.27	L

ATOM	418	O	ASN	53	121.809	54.592	60.783	1.00 34.60	L
ATOM	419	N	LEU	54	121.899	55.607	62.795	1.00 34.99	L
ATOM	420	CA	LEU	54	123.064	54.880	63.294	1.00 47.12	L
ATOM	421	CB	LEU	54	123.649	55.607	64.510	1.00 37.02	L
ATOM	422	CG	LEU	54	125.152	55.873	64.594	1.00 20.40	L
ATOM	423	CD1	LEU	54	125.508	57.117	63.830	1.00 25.30	L
ATOM	424	CD2	LEU	54	125.533	56.034	66.039	1.00 22.53	L
ATOM	425	C	LEU	54	122.660	53.468	63.705	1.00 56.63	L
ATOM	426	O	LEU	54	121.529	53.250	64.145	1.00 68.94	L
ATOM	427	N	HIS	55	123.578	52.513	63.573	1.00 51.79	L
ATOM	428	CA	HIS	55	123.267	51.142	63.948	1.00 38.57	L
ATOM	429	CB	HIS	55	124.091	50.139	63.137	1.00 36.54	L
ATOM	430	CG	HIS	55	123.551	48.742	63.186	1.00 27.93	L
ATOM	431	CD2	HIS	55	122.338	48.268	63.551	1.00 31.02	L
ATOM	432	ND1	HIS	55	124.303	47.639	62.841	1.00 36.74	L
ATOM	433	CE1	HIS	55	123.573	46.545	62.993	1.00 43.03	L
ATOM	434	NE2	HIS	55	122.376	46.902	63.423	1.00 37.77	L
ATOM	435	C	HIS	55	123.513	50.925	65.424	1.00 38.01	L
ATOM	436	O	HIS	55	124.296	51.634	66.058	1.00 47.97	L
ATOM	437	N	THR	56	122.832	49.930	65.966	1.00 33.15	L
ATOM	438	CA	THR	56	122.951	49.600	67.371	1.00 41.46	L
ATOM	439	CB	THR	56	122.008	48.436	67.708	1.00 58.72	L
ATOM	440	OG1	THR	56	121.601	47.787	66.495	1.00 57.81	L
ATOM	441	CG2	THR	56	120.770	48.955	68.430	1.00 63.75	L
ATOM	442	C	THR	56	124.380	49.260	67.805	1.00 32.47	L
ATOM	443	O	THR	56	124.940	48.236	67.415	1.00 23.36	L
ATOM	444	N	GLY	57	124.967	50.136	68.612	1.00 28.03	L
ATOM	445	CA	GLY	57	126.311	49.893	69.101	1.00 36.90	L
ATOM	446	C	GLY	57	127.388	50.703	68.403	1.00 48.73	L
ATOM	447	O	GLY	57	128.584	50.506	68.641	1.00 45.48	L
ATOM	448	N	VAL	58	126.971	51.616	67.537	1.00 45.32	L
ATOM	449	CA	VAL	58	127.926	52.439	66.819	1.00 42.70	L
ATOM	450	CB	VAL	58	127.448	52.680	65.372	1.00 41.53	L
ATOM	451	CG1	VAL	58	128.383	53.648	64.654	1.00 20.54	L
ATOM	452	CG2	VAL	58	127.380	51.354	64.635	1.00 16.05	L
ATOM	453	C	VAL	58	128.129	53.768	67.546	1.00 40.96	L
ATOM	454	O	VAL	58	127.178	54.509	67.780	1.00 35.53	L
ATOM	455	N	PRO	59	129.378	54.059	67.951	1.00 38.91	L
ATOM	456	CD	PRO	59	130.553	53.187	67.788	1.00 42.54	L
ATOM	457	CA	PRO	59	129.717	55.296	68.658	1.00 38.07	L
ATOM	458	CB	PRO	59	131.253	55.289	68.706	1.00 34.29	L
ATOM	459	CG	PRO	59	131.698	54.148	67.847	1.00 25.37	L
ATOM	460	C	PRO	59	129.174	56.543	67.980	1.00 36.88	L
ATOM	461	O	PRO	59	129.273	56.694	66.762	1.00 38.73	L
ATOM	462	N	SER	60	128.605	57.437	68.782	1.00 35.30	L
ATOM	463	CA	SER	60	128.044	58.680	68.274	1.00 37.70	L
ATOM	464	CB	SER	60	127.466	59.513	69.424	1.00 47.02	L
ATOM	465	OG	SER	60	128.108	59.201	70.648	1.00 44.15	L
ATOM	466	C	SER	60	129.096	59.492	67.536	1.00 33.70	L
ATOM	467	O	SER	60	128.760	60.405	66.785	1.00 38.05	L
ATOM	468	N	ARG	61	130.369	59.175	67.758	1.00 31.36	L
ATOM	469	CA	ARG	61	131.440	59.887	67.068	1.00 40.37	L
ATOM	470	CB	ARG	61	132.801	59.241	67.361	1.00 45.69	L

ATOM	471	CG	ARG	61	133.316	58.277	66.278	1.00 69.44	L
ATOM	472	CD	ARG	61	134.854	58.263	66.188	1.00 56.63	L
ATOM	473	NE	ARG	61	135.482	57.895	67.458	1.00 41.22	L
ATOM	474	CZ	ARG	61	135.733	56.646	67.834	1.00 36.39	L
ATOM	475	NH1	ARG	61	135.411	55.637	67.041	1.00 46.50	L
ATOM	476	NH2	ARG	61	136.294	56.405	69.008	1.00 45.10	L
ATOM	477	C	ARG	61	131.137	59.822	65.573	1.00 39.44	L
ATOM	478	O	ARG	61	131.495	60.718	64.807	1.00 31.59	L
ATOM	479	N	PHE	62	130.468	58.744	65.176	1.00 29.20	L
ATOM	480	CA	PHE	62	130.083	58.534	63.795	1.00 21.62	L
ATOM	481	CB	PHE	62	129.922	57.038	63.507	1.00 15.95	L
ATOM	482	CG	PHE	62	131.216	56.325	63.248	1.00 28.60	L
ATOM	483	CD1	PHE	62	131.770	56.303	61.975	1.00 25.81	L
ATOM	484	CD2	PHE	62	131.884	55.661	64.277	1.00 34.71	L
ATOM	485	CE1	PHE	62	132.973	55.629	61.730	1.00 25.28	L
ATOM	486	CE2	PHE	62	133.086	54.987	64.039	1.00 17.13	L
ATOM	487	CZ	PHE	62	133.628	54.972	62.759	1.00 16.17	L
ATOM	488	C	PHE	62	128.749	59.223	63.574	1.00 27.58	L
ATOM	489	O	PHE	62	127.812	59.041	64.347	1.00 26.02	L
ATOM	490	N	SER	63	128.667	60.028	62.526	1.00 27.01	L
ATOM	491	CA	SER	63	127.432	60.724	62.194	1.00 29.21	L
ATOM	492	CB	SER	63	127.512	62.197	62.620	1.00 27.06	L
ATOM	493	OG	SER	63	127.604	63.059	61.501	1.00 46.67	L
ATOM	494	C	SER	63	127.271	60.609	60.689	1.00 31.69	L
ATOM	495	O	SER	63	128.247	60.359	59.983	1.00 35.00	L
ATOM	496	N	GLY	64	126.046	60.778	60.203	1.00 32.44	L
ATOM	497	CA	GLY	64	125.796	60.677	58.775	1.00 28.03	L
ATOM	498	C	GLY	64	124.656	61.567	58.325	1.00 36.15	L
ATOM	499	O	GLY	64	123.678	61.753	59.050	1.00 31.20	L
ATOM	500	N	SER	65	124.761	62.103	57.115	1.00 45.47	L
ATOM	501	CA	SER	65	123.723	62.993	56.612	1.00 43.02	L
ATOM	502	CB	SER	65	124.029	64.412	57.075	1.00 39.26	L
ATOM	503	OG	SER	65	125.378	64.487	57.510	1.00 49.79	L
ATOM	504	C	SER	65	123.566	62.975	55.097	1.00 33.50	L
ATOM	505	O	SER	65	124.401	62.428	54.373	1.00 35.77	L
ATOM	506	N	GLY	66	122.485	63.579	54.625	1.00 17.16	L
ATOM	507	CA	GLY	66	122.258	63.641	53.196	1.00 29.10	L
ATOM	508	C	GLY	66	120.920	63.081	52.769	1.00 35.42	L
ATOM	509	O	GLY	66	120.321	62.267	53.479	1.00 32.46	L
ATOM	510	N	SER	67	120.449	63.527	51.608	1.00 24.62	L
ATOM	511	CA	SER	67	119.184	63.062	51.061	1.00 28.74	L
ATOM	512	CB	SER	67	118.012	63.757	51.757	1.00 46.75	L
ATOM	513	OG	SER	67	116.780	63.142	51.412	1.00 59.32	L
ATOM	514	C	SER	67	119.129	63.343	49.567	1.00 32.92	L
ATOM	515	O	SER	67	119.579	64.391	49.113	1.00 35.08	L
ATOM	516	N	GLY	68	118.589	62.399	48.803	1.00 32.00	L
ATOM	517	CA	GLY	68	118.485	62.585	47.367	1.00 22.78	L
ATOM	518	C	GLY	68	119.712	62.129	46.604	1.00 35.09	L
ATOM	519	O	GLY	68	119.885	60.935	46.341	1.00 32.80	L
ATOM	520	N	THR	69	120.567	63.086	46.255	1.00 36.67	L
ATOM	521	CA	THR	69	121.784	62.805	45.505	1.00 36.14	L
ATOM	522	CB	THR	69	121.890	63.748	44.285	1.00 43.08	L
ATOM	523	OG1	THR	69	120.775	63.516	43.414	1.00 47.12	L

ATOM	524	CG2	THR	69	123.175	63.505	43.514	1.00 44.41	L
ATOM	525	C	THR	69	123.029	62.953	46.376	1.00 29.87	L
ATOM	526	O	THR	69	123.915	62.101	46.350	1.00 38.58	L
ATOM	527	N	GLY	70	123.082	64.022	47.160	1.00 31.63	L
ATOM	528	CA	GLY	70	124.234	64.256	48.016	1.00 42.61	L
ATOM	529	C	GLY	70	124.171	63.521	49.337	1.00 36.70	L
ATOM	530	O	GLY	70	123.119	63.471	49.965	1.00 45.53	L
ATOM	531	N	PHE	71	125.295	62.944	49.755	1.00 38.83	L
ATOM	532	CA	PHE	71	125.370	62.206	51.019	1.00 33.73	L
ATOM	533	CB	PHE	71	124.999	60.739	50.798	1.00 31.54	L
ATOM	534	CG	PHE	71	123.602	60.540	50.263	1.00 38.58	L
ATOM	535	CD1	PHE	71	122.561	60.199	51.120	1.00 21.48	L
ATOM	536	CD2	PHE	71	123.329	60.697	48.908	1.00 26.22	L
ATOM	537	CE1	PHE	71	121.278	60.021	50.641	1.00 26.37	L
ATOM	538	CE2	PHE	71	122.044	60.520	48.422	1.00 42.61	L
ATOM	539	CZ	PHE	71	121.016	60.183	49.286	1.00 24.00	L
ATOM	540	C	PHE	71	126.774	62.296	51.605	1.00 27.97	L
ATOM	541	O	PHE	71	127.760	62.212	50.877	1.00 31.31	L
ATOM	542	N	THR	72	126.866	62.457	52.921	1.00 26.78	L
ATOM	543	CA	THR	72	128.167	62.582	53.564	1.00 26.67	L
ATOM	544	CB	THR	72	128.520	64.069	53.781	1.00 32.81	L
ATOM	545	OG1	THR	72	129.493	64.187	54.826	1.00 56.77	L
ATOM	546	CG2	THR	72	127.288	64.856	54.164	1.00 32.03	L
ATOM	547	C	THR	72	128.291	61.866	54.903	1.00 27.04	L
ATOM	548	O	THR	72	127.308	61.722	55.635	1.00 23.90	L
ATOM	549	N	LEU	73	129.511	61.417	55.207	1.00 31.55	L
ATOM	550	CA	LEU	73	129.816	60.722	56.459	1.00 24.92	L
ATOM	551	CB	LEU	73	130.387	59.333	56.194	1.00 32.89	L
ATOM	552	CG	LEU	73	130.625	58.551	57.490	1.00 34.57	L
ATOM	553	CD1	LEU	73	129.287	58.045	58.021	1.00 14.98	L
ATOM	554	CD2	LEU	73	131.586	57.404	57.246	1.00 10.86	L
ATOM	555	C	LEU	73	130.826	61.512	57.274	1.00 25.60	L
ATOM	556	O	LEU	73	131.823	62.004	56.755	1.00 39.03	L
ATOM	557	N	THR	74	130.581	61.593	58.567	1.00 21.07	L
ATOM	558	CA	THR	74	131.443	62.362	59.436	1.00 25.98	L
ATOM	559	CB	THR	74	130.686	63.625	59.933	1.00 34.99	L
ATOM	560	OG1	THR	74	130.181	64.351	58.808	1.00 35.85	L
ATOM	561	CG2	THR	74	131.588	64.524	60.747	1.00 27.11	L
ATOM	562	C	THR	74	131.886	61.542	60.640	1.00 29.95	L
ATOM	563	O	THR	74	131.065	60.931	61.322	1.00 36.77	L
ATOM	564	N	ILE	75	133.186	61.522	60.896	1.00 24.95	L
ATOM	565	CA	ILE	75	133.706	60.813	62.052	1.00 23.49	L
ATOM	566	CB	ILE	75	134.723	59.737	61.659	1.00 21.59	L
ATOM	567	CG2	ILE	75	135.597	59.401	62.847	1.00 7.06	L
ATOM	568	CG1	ILE	75	133.988	58.479	61.198	1.00 33.47	L
ATOM	569	CD1	ILE	75	133.840	58.343	59.687	1.00 25.94	L
ATOM	570	C	ILE	75	134.399	61.855	62.914	1.00 34.16	L
ATOM	571	O	ILE	75	135.440	62.381	62.537	1.00 28.63	L
ATOM	572	N	SER	76	133.803	62.167	64.059	1.00 42.00	L
ATOM	573	CA	SER	76	134.366	63.155	64.971	1.00 51.91	L
ATOM	574	CB	SER	76	133.251	63.762	65.829	1.00 67.85	L
ATOM	575	OG	SER	76	131.981	63.244	65.449	1.00 75.08	L
ATOM	576	C	SER	76	135.424	62.507	65.865	1.00 55.79	L

ATOM	577	O	SER	76	135.372	61.304	66.131	1.00 54.31	L
ATOM	578	N	SER	77	136.384	63.307	66.319	1.00 51.60	L
ATOM	579	CA	SER	77	137.459	62.818	67.177	1.00 51.14	L
ATOM	580	CB	SER	77	136.993	62.788	68.633	1.00 51.40	L
ATOM	581	OG	SER	77	136.336	63.998	68.967	1.00 52.89	L
ATOM	582	C	SER	77	137.938	61.433	66.755	1.00 49.10	L
ATOM	583	O	SER	77	137.515	60.422	67.311	1.00 47.48	L
ATOM	584	N	LEU	78	138.832	61.406	65.771	1.00 46.54	L
ATOM	585	CA	LEU	78	139.389	60.168	65.241	1.00 32.83	L
ATOM	586	CB	LEU	78	140.333	60.495	64.084	1.00 27.78	L
ATOM	587	CG	LEU	78	140.423	59.481	62.950	1.00 35.44	L
ATOM	588	CD1	LEU	78	139.472	59.898	61.855	1.00 40.91	L
ATOM	589	CD2	LEU	78	141.852	59.397	62.421	1.00 25.57	L
ATOM	590	C	LEU	78	140.134	59.314	66.268	1.00 28.27	L
ATOM	591	O	LEU	78	140.668	59.809	67.264	1.00 19.55	L
ATOM	592	N	GLN	79	140.163	58.016	65.999	1.00 30.85	L
ATOM	593	CA	GLN	79	140.847	57.064	66.859	1.00 34.63	L
ATOM	594	CB	GLN	79	139.855	56.338	67.763	1.00 47.40	L
ATOM	595	CG	GLN	79	139.162	57.238	68.764	1.00 66.32	L
ATOM	596	CD	GLN	79	140.118	57.793	69.791	1.00 51.70	L
ATOM	597	OE1	GLN	79	141.184	57.229	70.022	1.00 38.18	L
ATOM	598	NE2	GLN	79	139.740	58.901	70.419	1.00 50.52	L
ATOM	599	C	GLN	79	141.534	56.054	65.965	1.00 36.58	L
ATOM	600	O	GLN	79	141.056	55.755	64.869	1.00 30.40	L
ATOM	601	N	PRO	80	142.663	55.504	66.430	1.00 40.78	L
ATOM	602	CD	PRO	80	143.270	55.791	67.740	1.00 37.68	L
ATOM	603	CA	PRO	80	143.430	54.513	65.665	1.00 41.10	L
ATOM	604	CB	PRO	80	144.460	53.991	66.672	1.00 43.39	L
ATOM	605	CG	PRO	80	144.056	54.557	68.021	1.00 37.64	L
ATOM	606	C	PRO	80	142.532	53.398	65.149	1.00 46.35	L
ATOM	607	O	PRO	80	142.569	53.048	63.969	1.00 41.86	L
ATOM	608	N	GLU	81	141.721	52.859	66.056	1.00 57.27	L
ATOM	609	CA	GLU	81	140.793	51.773	65.761	1.00 58.29	L
ATOM	610	CB	GLU	81	139.870	51.548	66.967	1.00 54.76	L
ATOM	611	CG	GLU	81	138.677	52.498	67.042	1.00 71.46	L
ATOM	612	CD	GLU	81	138.507	53.125	68.419	1.00 74.52	L
ATOM	613	OE1	GLU	81	137.390	53.039	68.983	1.00 60.52	L
ATOM	614	OE2	GLU	81	139.489	53.703	68.934	1.00 65.39	L
ATOM	615	C	GLU	81	139.956	51.998	64.503	1.00 62.35	L
ATOM	616	O	GLU	81	139.618	51.052	63.794	1.00 64.51	L
ATOM	617	N	ASP	82	139.629	53.256	64.230	1.00 63.68	L
ATOM	618	CA	ASP	82	138.823	53.600	63.069	1.00 50.22	L
ATOM	619	CB	ASP	82	138.299	55.024	63.212	1.00 50.14	L
ATOM	620	CG	ASP	82	137.729	55.285	64.581	1.00 50.17	L
ATOM	621	OD1	ASP	82	137.107	54.358	65.143	1.00 56.15	L
ATOM	622	OD2	ASP	82	137.906	56.408	65.095	1.00 62.15	L
ATOM	623	C	ASP	82	139.583	53.462	61.761	1.00 47.40	L
ATOM	624	O	ASP	82	139.080	53.837	60.706	1.00 44.58	L
ATOM	625	N	ILE	83	140.801	52.935	61.830	1.00 43.70	L
ATOM	626	CA	ILE	83	141.586	52.738	60.621	1.00 38.44	L
ATOM	627	CB	ILE	83	142.991	52.194	60.932	1.00 41.83	L
ATOM	628	CG2	ILE	83	143.428	51.225	59.846	1.00 41.86	L
ATOM	629	CG1	ILE	83	143.982	53.356	61.025	1.00 52.87	L

ATOM	630	CD1	ILE	83	145.232	53.032	61.826	1.00 47.10	L
ATOM	631	C	ILE	83	140.827	51.706	59.794	1.00 32.55	L
ATOM	632	O	ILE	83	140.588	50.594	60.263	1.00 26.83	L
ATOM	633	N	ALA	84	140.441	52.085	58.575	1.00 26.12	L
ATOM	634	CA	ALA	84	139.692	51.200	57.693	1.00 15.10	L
ATOM	635	CB	ALA	84	138.453	50.702	58.406	1.00 21.07	L
ATOM	636	C	ALA	84	139.290	51.913	56.414	1.00 12.91	L
ATOM	637	O	ALA	84	139.668	53.060	56.195	1.00 24.44	L
ATOM	638	N	THR	85	138.519	51.224	55.578	1.00 19.66	L
ATOM	639	CA	THR	85	138.025	51.774	54.320	1.00 17.95	L
ATOM	640	CB	THR	85	138.413	50.898	53.131	1.00 21.81	L
ATOM	641	OG1	THR	85	137.552	51.197	52.024	1.00 45.12	L
ATOM	642	CG2	THR	85	138.277	49.435	53.490	1.00 27.37	L
ATOM	643	C	THR	85	136.505	51.809	54.410	1.00 27.74	L
ATOM	644	O	THR	85	135.876	50.804	54.732	1.00 32.43	L
ATOM	645	N	TYR	86	135.914	52.960	54.116	1.00 37.25	L
ATOM	646	CA	TYR	86	134.469	53.109	54.213	1.00 33.34	L
ATOM	647	CB	TYR	86	134.153	54.363	55.028	1.00 25.32	L
ATOM	648	CG	TYR	86	134.852	54.381	56.372	1.00 28.51	L
ATOM	649	CD1	TYR	86	134.151	54.118	57.547	1.00 44.83	L
ATOM	650	CE1	TYR	86	134.801	54.071	58.789	1.00 21.36	L
ATOM	651	CD2	TYR	86	136.226	54.607	56.467	1.00 14.36	L
ATOM	652	CE2	TYR	86	136.884	54.561	57.705	1.00 22.98	L
ATOM	653	CZ	TYR	86	136.158	54.289	58.857	1.00 22.24	L
ATOM	654	OH	TYR	86	136.786	54.210	60.072	1.00 25.93	L
ATOM	655	C	TYR	86	133.766	53.159	52.868	1.00 44.00	L
ATOM	656	O	TYR	86	134.164	53.908	51.975	1.00 50.72	L
ATOM	657	N	TYR	87	132.712	52.353	52.748	1.00 51.03	L
ATOM	658	CA	TYR	87	131.910	52.248	51.526	1.00 48.37	L
ATOM	659	CB	TYR	87	131.795	50.780	51.108	1.00 25.20	L
ATOM	660	CG	TYR	87	133.108	50.126	50.753	1.00 41.42	L
ATOM	661	CD1	TYR	87	133.551	50.080	49.427	1.00 38.02	L
ATOM	662	CE1	TYR	87	134.769	49.484	49.096	1.00 42.21	L
ATOM	663	CD2	TYR	87	133.918	49.555	51.742	1.00 33.37	L
ATOM	664	CE2	TYR	87	135.137	48.957	51.418	1.00 33.81	L
ATOM	665	CZ	TYR	87	135.555	48.929	50.096	1.00 23.95	L
ATOM	666	OH	TYR	87	136.771	48.380	49.779	1.00 34.33	L
ATOM	667	C	TYR	87	130.493	52.813	51.687	1.00 52.12	L
ATOM	668	O	TYR	87	129.948	52.838	52.786	1.00 65.19	L
ATOM	669	N	CYS	88	129.895	53.250	50.582	1.00 47.34	L
ATOM	670	CA	CYS	88	128.538	53.789	50.598	1.00 32.49	L
ATOM	671	C	CYS	88	127.715	52.920	49.661	1.00 32.31	L
ATOM	672	O	CYS	88	128.140	52.641	48.547	1.00 39.98	L
ATOM	673	CB	CYS	88	128.530	55.233	50.093	1.00 33.98	L
ATOM	674	SG	CYS	88	128.799	55.411	48.289	1.00 51.95	L
ATOM	675	N	GLN	89	126.549	52.476	50.109	1.00 22.59	L
ATOM	676	CA	GLN	89	125.709	51.648	49.260	1.00 21.84	L
ATOM	677	CB	GLN	89	125.810	50.179	49.700	1.00 31.57	L
ATOM	678	CG	GLN	89	124.788	49.740	50.735	1.00 42.44	L
ATOM	679	CD	GLN	89	123.613	48.982	50.132	1.00 34.76	L
ATOM	680	OE1	GLN	89	122.664	48.637	50.834	1.00 26.74	L
ATOM	681	NE2	GLN	89	123.671	48.723	48.831	1.00 46.97	L
ATOM	682	C	GLN	89	124.262	52.131	49.287	1.00 25.45	L

ATOM	683	O	GLN	89	123.783	52.603	50.313	1.00 20.31	L
ATOM	684	N	GLN	90	123.574	52.035	48.153	1.00 19.13	L
ATOM	685	CA	GLN	90	122.183	52.457	48.096	1.00 19.46	L
ATOM	686	CB	GLN	90	121.882	53.162	46.769	1.00 22.24	L
ATOM	687	CG	GLN	90	122.072	52.299	45.523	1.00 38.10	L
ATOM	688	CD	GLN	90	120.775	51.666	45.009	1.00 30.31	L
ATOM	689	OE1	GLN	90	119.701	51.853	45.586	1.00 32.81	L
ATOM	690	NE2	GLN	90	120.878	50.908	43.921	1.00 28.00	L
ATOM	691	C	GLN	90	121.257	51.250	48.267	1.00 30.72	L
ATOM	692	O	GLN	90	121.556	50.143	47.801	1.00 25.46	L
ATOM	693	N	GLY	91	120.137	51.473	48.951	1.00 34.63	L
ATOM	694	CA	GLY	91	119.166	50.416	49.179	1.00 33.97	L
ATOM	695	C	GLY	91	117.820	50.781	48.580	1.00 38.48	L
ATOM	696	O	GLY	91	116.762	50.335	49.035	1.00 28.43	L
ATOM	697	N	GLN	92	117.869	51.603	47.540	1.00 28.95	L
ATOM	698	CA	GLN	92	116.668	52.043	46.868	1.00 29.94	L
ATOM	699	CB	GLN	92	116.841	53.489	46.418	1.00 30.37	L
ATOM	700	CG	GLN	92	115.571	54.307	46.498	1.00 39.02	L
ATOM	701	CD	GLN	92	115.079	54.736	45.130	1.00 41.59	L
ATOM	702	OE1	GLN	92	114.039	54.274	44.663	1.00 31.97	L
ATOM	703	NE2	GLN	92	115.829	55.621	44.479	1.00 59.08	L
ATOM	704	C	GLN	92	116.352	51.144	45.680	1.00 41.66	L
ATOM	705	O	GLN	92	115.495	50.267	45.782	1.00 33.85	L
ATOM	706	N	THR	93	117.046	51.373	44.564	1.00 60.13	L
ATOM	707	CA	THR	93	116.866	50.596	43.327	1.00 66.93	L
ATOM	708	CB	THR	93	117.639	51.242	42.149	1.00 78.05	L
ATOM	709	OG1	THR	93	117.362	52.647	42.104	1.00 79.52	L
ATOM	710	CG2	THR	93	117.233	50.610	40.829	1.00 75.70	L
ATOM	711	C	THR	93	117.391	49.180	43.539	1.00 59.06	L
ATOM	712	O	THR	93	118.425	49.009	44.183	1.00 58.37	L
ATOM	713	N	TYR	94	116.703	48.173	42.993	1.00 50.92	L
ATOM	714	CA	TYR	94	117.127	46.791	43.209	1.00 52.81	L
ATOM	715	CB	TYR	94	116.119	45.793	42.646	1.00 55.69	L
ATOM	716	CG	TYR	94	115.809	44.706	43.658	1.00 64.81	L
ATOM	717	CD1	TYR	94	116.742	44.361	44.643	1.00 66.44	L
ATOM	718	CE1	TYR	94	116.451	43.413	45.622	1.00 61.74	L
ATOM	719	CD2	TYR	94	114.573	44.066	43.676	1.00 65.08	L
ATOM	720	CE2	TYR	94	114.269	43.112	44.654	1.00 75.90	L
ATOM	721	CZ	TYR	94	115.214	42.796	45.623	1.00 73.24	L
ATOM	722	OH	TYR	94	114.918	41.877	46.603	1.00 71.00	L
ATOM	723	C	TYR	94	118.530	46.372	42.797	1.00 58.78	L
ATOM	724	O	TYR	94	119.146	45.561	43.487	1.00 72.46	L
ATOM	725	N	PRO	95	119.045	46.851	41.650	1.00 50.22	L
ATOM	726	CD	PRO	95	118.550	47.719	40.573	1.00 29.17	L
ATOM	727	CA	PRO	95	120.412	46.375	41.404	1.00 45.68	L
ATOM	728	CB	PRO	95	120.673	46.762	39.946	1.00 19.42	L
ATOM	729	CG	PRO	95	119.780	47.938	39.712	1.00 25.27	L
ATOM	730	C	PRO	95	121.286	47.156	42.398	1.00 43.53	L
ATOM	731	O	PRO	95	121.936	48.131	42.027	1.00 52.07	L
ATOM	732	N	TYR	96	121.253	46.734	43.667	1.00 32.53	L
ATOM	733	CA	TYR	96	122.000	47.378	44.748	1.00 29.95	L
ATOM	734	CB	TYR	96	122.099	46.463	45.971	1.00 35.33	L
ATOM	735	CG	TYR	96	120.833	46.317	46.792	1.00 28.60	L

ATOM	736	CD1	TYR	96	120.678	45.244	47.663	1.00 33.58	L
ATOM	737	CE1	TYR	96	119.523	45.087	48.430	1.00 23.02	L
ATOM	738	CD2	TYR	96	119.792	47.244	46.701	1.00 29.21	L
ATOM	739	CE2	TYR	96	118.625	47.096	47.466	1.00 29.26	L
ATOM	740	CZ	TYR	96	118.506	46.011	48.329	1.00 29.92	L
ATOM	741	OH	TYR	96	117.383	45.853	49.102	1.00 25.77	L
ATOM	742	C	TYR	96	123.392	47.712	44.281	1.00 29.68	L
ATOM	743	O	TYR	96	123.980	46.954	43.511	1.00 37.11	L
ATOM	744	N	THR	97	123.926	48.830	44.770	1.00 36.89	L
ATOM	745	CA	THR	97	125.259	49.280	44.372	1.00 40.63	L
ATOM	746	CB	THR	97	125.153	50.181	43.141	1.00 46.47	L
ATOM	747	OG1	THR	97	123.945	50.951	43.228	1.00 49.45	L
ATOM	748	CG2	THR	97	125.123	49.342	41.874	1.00 48.22	L
ATOM	749	C	THR	97	126.017	50.049	45.458	1.00 34.47	L
ATOM	750	O	THR	97	125.473	50.975	46.062	1.00 27.32	L
ATOM	751	N	PHE	98	127.268	49.662	45.700	1.00 24.58	L
ATOM	752	CA	PHE	98	128.097	50.338	46.689	1.00 19.63	L
ATOM	753	CB	PHE	98	129.009	49.369	47.458	1.00 21.69	L
ATOM	754	CG	PHE	98	128.386	48.051	47.780	1.00 22.09	L
ATOM	755	CD1	PHE	98	128.078	47.719	49.098	1.00 28.14	L
ATOM	756	CD2	PHE	98	128.145	47.117	46.780	1.00 29.87	L
ATOM	757	CE1	PHE	98	127.543	46.481	49.409	1.00 20.31	L
ATOM	758	CE2	PHE	98	127.610	45.877	47.080	1.00 20.97	L
ATOM	759	CZ	PHE	98	127.308	45.556	48.397	1.00 35.93	L
ATOM	760	C	PHE	98	128.994	51.317	45.947	1.00 27.49	L
ATOM	761	O	PHE	98	128.868	51.493	44.738	1.00 15.09	L
ATOM	762	N	GLY	99	129.912	51.931	46.689	1.00 32.03	L
ATOM	763	CA	GLY	99	130.839	52.878	46.106	1.00 37.27	L
ATOM	764	C	GLY	99	132.207	52.250	45.927	1.00 44.52	L
ATOM	765	O	GLY	99	132.319	51.038	45.717	1.00 42.71	L
ATOM	766	N	GLY	100	133.246	53.077	46.008	1.00 42.44	L
ATOM	767	CA	GLY	100	134.600	52.584	45.848	1.00 51.35	L
ATOM	768	C	GLY	100	135.344	52.448	47.164	1.00 53.12	L
ATOM	769	O	GLY	100	136.390	51.791	47.241	1.00 49.35	L
ATOM	770	N	GLY	101	134.799	53.067	48.204	1.00 43.66	L
ATOM	771	CA	GLY	101	135.430	53.013	49.504	1.00 26.42	L
ATOM	772	C	GLY	101	136.368	54.181	49.696	1.00 21.78	L
ATOM	773	O	GLY	101	136.710	54.886	48.747	1.00 23.28	L
ATOM	774	N	THR	102	136.787	54.392	50.933	1.00 17.65	L
ATOM	775	CA	THR	102	137.682	55.489	51.221	1.00 39.10	L
ATOM	776	CB	THR	102	136.869	56.745	51.644	1.00 49.68	L
ATOM	777	OG1	THR	102	137.738	57.731	52.224	1.00 42.53	L
ATOM	778	CG2	THR	102	135.780	56.357	52.630	1.00 55.18	L
ATOM	779	C	THR	102	138.659	55.072	52.311	1.00 37.54	L
ATOM	780	O	THR	102	138.295	54.948	53.478	1.00 44.36	L
ATOM	781	N	LYS	103	139.903	54.830	51.911	1.00 34.42	L
ATOM	782	CA	LYS	103	140.943	54.427	52.850	1.00 33.42	L
ATOM	783	CB	LYS	103	142.245	54.118	52.095	1.00 27.82	L
ATOM	784	CG	LYS	103	143.518	54.210	52.937	1.00 32.59	L
ATOM	785	CD	LYS	103	144.038	55.649	53.036	1.00 39.07	L
ATOM	786	CE	LYS	103	145.366	55.734	53.790	1.00 45.98	L
ATOM	787	NZ	LYS	103	146.255	56.817	53.258	1.00 37.43	L
ATOM	788	C	LYS	103	141.185	55.531	53.868	1.00 23.38	L

ATOM	789	O	LYS	103	140.842	56.687	53.637	1.00 30.72	L
ATOM	790	N	LEU	104	141.770	55.171	55.002	1.00 32.38	L
ATOM	791	CA	LEU	104	142.077	56.159	56.021	1.00 38.59	L
ATOM	792	CB	LEU	104	140.904	56.368	56.966	1.00 25.66	L
ATOM	793	CG	LEU	104	141.378	57.265	58.113	1.00 32.02	L
ATOM	794	CD1	LEU	104	140.804	58.658	57.944	1.00 23.79	L
ATOM	795	CD2	LEU	104	140.996	56.648	59.452	1.00 29.54	L
ATOM	796	C	LEU	104	143.300	55.784	56.841	1.00 45.89	L
ATOM	797	O	LEU	104	143.525	54.612	57.154	1.00 45.41	L
ATOM	798	N	GLU	105	144.080	56.799	57.197	1.00 40.34	L
ATOM	799	CA	GLU	105	145.280	56.597	57.979	1.00 35.75	L
ATOM	800	CB	GLU	105	146.510	56.674	57.064	1.00 52.11	L
ATOM	801	CG	GLU	105	147.798	57.154	57.728	1.00 69.87	L
ATOM	802	CD	GLU	105	148.876	57.513	56.712	1.00 84.87	L
ATOM	803	OE1	GLU	105	150.027	57.054	56.875	1.00 87.68	L
ATOM	804	OE2	GLU	105	148.578	58.251	55.748	1.00 91.43	L
ATOM	805	C	GLU	105	145.365	57.644	59.076	1.00 23.69	L
ATOM	806	O	GLU	105	145.640	58.804	58.808	1.00 36.93	L
ATOM	807	N	ILE	106	145.088	57.241	60.311	1.00 29.41	L
ATOM	808	CA	ILE	106	145.199	58.168	61.425	1.00 38.27	L
ATOM	809	CB	ILE	106	144.723	57.513	62.769	1.00 40.94	L
ATOM	810	CG2	ILE	106	145.030	56.026	62.766	1.00 31.48	L
ATOM	811	CG1	ILE	106	145.387	58.193	63.971	1.00 37.37	L
ATOM	812	CD1	ILE	106	144.571	59.336	64.579	1.00 27.37	L
ATOM	813	C	ILE	106	146.702	58.441	61.434	1.00 40.57	L
ATOM	814	O	ILE	106	147.497	57.506	61.438	1.00 41.72	L
ATOM	815	N	LYS	107	147.088	59.716	61.399	1.00 48.16	L
ATOM	816	CA	LYS	107	148.500	60.100	61.364	1.00 42.60	L
ATOM	817	CB	LYS	107	148.640	61.486	60.736	1.00 20.26	L
ATOM	818	CG	LYS	107	150.043	62.069	60.819	1.00 43.13	L
ATOM	819	CD	LYS	107	150.034	63.572	60.590	1.00 34.99	L
ATOM	820	CE	LYS	107	149.967	63.895	59.108	1.00 38.89	L
ATOM	821	NZ	LYS	107	148.581	63.791	58.588	1.00 13.28	L
ATOM	822	C	LYS	107	149.186	60.089	62.729	1.00 51.65	L
ATOM	823	O	LYS	107	148.643	60.592	63.713	1.00 65.04	L
ATOM	824	N	ARG	108	150.388	59.519	62.781	1.00 52.66	L
ATOM	825	CA	ARG	108	151.147	59.450	64.028	1.00 39.90	L
ATOM	826	CB	ARG	108	151.199	58.007	64.553	1.00 33.40	L
ATOM	827	CG	ARG	108	152.127	57.083	63.771	1.00 28.54	L
ATOM	828	CD	ARG	108	152.649	55.957	64.635	1.00 25.73	L
ATOM	829	NE	ARG	108	153.934	56.297	65.246	1.00 34.47	L
ATOM	830	CZ	ARG	108	154.303	55.928	66.471	1.00 34.06	L
ATOM	831	NH1	ARG	108	153.489	55.205	67.224	1.00 57.79	L
ATOM	832	NH2	ARG	108	155.484	56.280	66.947	1.00 31.28	L
ATOM	833	C	ARG	108	152.566	59.974	63.858	1.00 41.80	L
ATOM	834	O	ARG	108	153.071	60.102	62.733	1.00 36.52	L
ATOM	835	N	ALA	109	153.193	60.271	64.996	1.00 49.39	L
ATOM	836	CA	ALA	109	154.557	60.774	65.040	1.00 56.62	L
ATOM	837	CB	ALA	109	155.042	60.822	66.479	1.00 33.22	L
ATOM	838	C	ALA	109	155.479	59.894	64.209	1.00 68.35	L
ATOM	839	O	ALA	109	155.350	58.667	64.213	1.00 79.99	L
ATOM	840	N	ASP	110	156.403	60.524	63.492	1.00 75.21	L
ATOM	841	CA	ASP	110	157.350	59.784	62.673	1.00 65.78	L

ATOM	842	CB	ASP	110	158.395	60.740	62.082	1.00	68.55	L
ATOM	843	CG	ASP	110	157.861	61.528	60.889	1.00	84.17	L
ATOM	844	OD1	ASP	110	156.656	61.399	60.580	1.00	78.11	L
ATOM	845	OD2	ASP	110	158.641	62.277	60.256	1.00	94.16	L
ATOM	846	C	ASP	110	158.022	58.731	63.551	1.00	60.38	L
ATOM	847	O	ASP	110	158.093	58.882	64.776	1.00	54.97	L
ATOM	848	N	ALA	111	158.487	57.651	62.932	1.00	55.72	L
ATOM	849	CA	ALA	111	159.151	56.577	63.661	1.00	59.37	L
ATOM	850	CB	ALA	111	158.123	55.633	64.272	1.00	55.98	L
ATOM	851	C	ALA	111	160.074	55.815	62.730	1.00	51.95	L
ATOM	852	O	ALA	111	159.669	55.363	61.658	1.00	59.98	L
ATOM	853	N	ALA	112	161.328	55.685	63.141	1.00	47.00	L
ATOM	854	CA	ALA	112	162.318	54.977	62.348	1.00	42.20	L
ATOM	855	CB	ALA	112	163.712	55.266	62.887	1.00	43.77	L
ATOM	856	C	ALA	112	162.043	53.476	62.376	1.00	42.23	L
ATOM	857	O	ALA	112	161.447	52.957	63.325	1.00	45.43	L
ATOM	858	N	PRO	113	162.464	52.761	61.325	1.00	51.11	L
ATOM	859	CD	PRO	113	163.153	53.256	60.117	1.00	52.49	L
ATOM	860	CA	PRO	113	162.250	51.316	61.269	1.00	49.74	L
ATOM	861	CB	PRO	113	162.267	51.018	59.776	1.00	32.76	L
ATOM	862	CG	PRO	113	163.223	52.029	59.220	1.00	41.64	L
ATOM	863	C	PRO	113	163.356	50.568	61.997	1.00	45.33	L
ATOM	864	O	PRO	113	164.511	50.988	61.974	1.00	53.16	L
ATOM	865	N	THR	114	163.006	49.475	62.661	1.00	36.71	L
ATOM	866	CA	THR	114	164.009	48.675	63.341	1.00	39.49	L
ATOM	867	CB	THR	114	163.505	48.159	64.706	1.00	34.54	L
ATOM	868	OG1	THR	114	162.504	47.153	64.511	1.00	38.54	L
ATOM	869	CG2	THR	114	162.926	49.305	65.518	1.00	31.63	L
ATOM	870	C	THR	114	164.322	47.515	62.406	1.00	42.88	L
ATOM	871	O	THR	114	163.527	46.585	62.247	1.00	35.53	L
ATOM	872	N	VAL	115	165.488	47.596	61.769	1.00	36.33	L
ATOM	873	CA	VAL	115	165.939	46.594	60.815	1.00	42.49	L
ATOM	874	CB	VAL	115	166.973	47.210	59.839	1.00	46.96	L
ATOM	875	CG1	VAL	115	167.217	46.269	58.670	1.00	26.72	L
ATOM	876	CG2	VAL	115	166.470	48.555	59.338	1.00	30.46	L
ATOM	877	C	VAL	115	166.544	45.324	61.424	1.00	38.71	L
ATOM	878	O	VAL	115	167.064	45.327	62.541	1.00	36.49	L
ATOM	879	N	SER	116	166.458	44.237	60.659	1.00	44.76	L
ATOM	880	CA	SER	116	166.988	42.939	61.053	1.00	51.12	L
ATOM	881	CB	SER	116	165.975	42.188	61.913	1.00	55.78	L
ATOM	882	OG	SER	116	165.653	42.932	63.068	1.00	58.23	L
ATOM	883	C	SER	116	167.292	42.130	59.799	1.00	44.61	L
ATOM	884	O	SER	116	166.413	41.891	58.976	1.00	53.07	L
ATOM	885	N	ILE	117	168.547	41.726	59.641	1.00	40.79	L
ATOM	886	CA	ILE	117	168.935	40.929	58.487	1.00	35.02	L
ATOM	887	CB	ILE	117	170.299	41.393	57.902	1.00	20.96	L
ATOM	888	CG2	ILE	117	171.426	41.040	58.848	1.00	28.48	L
ATOM	889	CG1	ILE	117	170.529	40.742	56.537	1.00	16.89	L
ATOM	890	CD1	ILE	117	171.461	41.525	55.632	1.00	18.50	L
ATOM	891	C	ILE	117	169.039	39.484	58.952	1.00	32.15	L
ATOM	892	O	ILE	117	169.467	39.212	60.076	1.00	40.81	L
ATOM	893	N	PHE	118	168.626	38.560	58.091	1.00	28.82	L
ATOM	894	CA	PHE	118	168.671	37.145	58.423	1.00	22.76	L

ATOM	895	CB	PHE	118	167.260	36.601	58.654	1.00 32.60	L
ATOM	896	CG	PHE	118	166.589	37.174	59.858	1.00 32.33	L
ATOM	897	CD1	PHE	118	165.845	38.339	59.761	1.00 32.14	L
ATOM	898	CD2	PHE	118	166.731	36.572	61.100	1.00 30.97	L
ATOM	899	CE1	PHE	118	165.262	38.902	60.884	1.00 43.45	L
ATOM	900	CE2	PHE	118	166.148	37.128	62.230	1.00 24.60	L
ATOM	901	CZ	PHE	118	165.411	38.294	62.124	1.00 41.49	L
ATOM	902	C	PHE	118	169.339	36.332	57.329	1.00 26.66	L
ATOM	903	O	PHE	118	168.928	36.370	56.170	1.00 29.78	L
ATOM	904	N	PRO	119	170.402	35.602	57.685	1.00 34.94	L
ATOM	905	CD	PRO	119	170.999	35.559	59.027	1.00 32.83	L
ATOM	906	CA	PRO	119	171.136	34.763	56.734	1.00 37.60	L
ATOM	907	CB	PRO	119	172.400	34.369	57.497	1.00 31.28	L
ATOM	908	CG	PRO	119	172.428	35.261	58.732	1.00 32.18	L
ATOM	909	C	PRO	119	170.278	33.551	56.389	1.00 36.29	L
ATOM	910	O	PRO	119	169.297	33.266	57.079	1.00 43.06	L
ATOM	911	N	PRO	120	170.628	32.822	55.321	1.00 33.16	L
ATOM	912	CD	PRO	120	171.752	33.046	54.401	1.00 35.66	L
ATOM	913	CA	PRO	120	169.838	31.645	54.944	1.00 27.25	L
ATOM	914	CB	PRO	120	170.543	31.110	53.699	1.00 23.84	L
ATOM	915	CG	PRO	120	171.345	32.258	53.186	1.00 47.85	L
ATOM	916	C	PRO	120	169.771	30.597	56.052	1.00 47.51	L
ATOM	917	O	PRO	120	170.408	30.733	57.097	1.00 61.24	L
ATOM	918	N	SER	121	168.990	29.552	55.812	1.00 46.49	L
ATOM	919	CA	SER	121	168.836	28.481	56.781	1.00 35.79	L
ATOM	920	CB	SER	121	167.366	28.091	56.908	1.00 39.97	L
ATOM	921	OG	SER	121	166.848	28.512	58.153	1.00 61.95	L
ATOM	922	C	SER	121	169.643	27.264	56.366	1.00 35.14	L
ATOM	923	O	SER	121	169.776	26.970	55.178	1.00 54.90	L
ATOM	924	N	SER	122	170.190	26.566	57.352	1.00 34.00	L
ATOM	925	CA	SER	122	170.964	25.367	57.078	1.00 43.67	L
ATOM	926	CB	SER	122	171.319	24.661	58.385	1.00 55.34	L
ATOM	927	OG	SER	122	170.845	25.401	59.496	1.00 66.58	L
ATOM	928	C	SER	122	170.038	24.496	56.265	1.00 39.48	L
ATOM	929	O	SER	122	170.345	24.107	55.139	1.00 38.43	L
ATOM	930	N	GLU	123	168.878	24.223	56.850	1.00 39.62	L
ATOM	931	CA	GLU	123	167.865	23.412	56.208	1.00 42.31	L
ATOM	932	CB	GLU	123	166.569	23.487	57.012	1.00 49.13	L
ATOM	933	CG	GLU	123	165.364	22.895	56.294	1.00 85.24	L
ATOM	934	CD	GLU	123	164.237	22.520	57.240	1.00100.00	L
ATOM	935	OE1	GLU	123	164.458	22.525	58.473	1.00 99.99	L
ATOM	936	OE2	GLU	123	163.127	22.221	56.742	1.00 99.98	L
ATOM	937	C	GLU	123	167.627	23.885	54.774	1.00 34.58	L
ATOM	938	O	GLU	123	167.599	23.079	53.843	1.00 33.93	L
ATOM	939	N	GLN	124	167.467	25.193	54.588	1.00 36.30	L
ATOM	940	CA	GLN	124	167.228	25.719	53.254	1.00 21.55	L
ATOM	941	CB	GLN	124	166.875	27.207	53.289	1.00 32.12	L
ATOM	942	CG	GLN	124	167.075	27.854	51.927	1.00 35.77	L
ATOM	943	CD	GLN	124	166.351	29.160	51.766	1.00 35.92	L
ATOM	944	OE1	GLN	124	166.349	29.995	52.669	1.00 37.01	L
ATOM	945	NE2	GLN	124	165.739	29.355	50.603	1.00 40.10	L
ATOM	946	C	GLN	124	168.441	25.534	52.353	1.00 29.80	L
ATOM	947	O	GLN	124	168.308	25.269	51.159	1.00 40.34	L

ATOM	948	N	LEU	125	169.626	25.691	52.921	1.00	29.81	L
ATOM	949	CA	LEU	125	170.837	25.538	52.142	1.00	30.50	L
ATOM	950	CB	LEU	125	172.047	25.907	52.998	1.00	28.95	L
ATOM	951	CG	LEU	125	172.296	27.418	53.004	1.00	38.05	L
ATOM	952	CD1	LEU	125	173.275	27.794	54.099	1.00	45.58	L
ATOM	953	CD2	LEU	125	172.814	27.836	51.636	1.00	18.04	L
ATOM	954	C	LEU	125	170.952	24.108	51.630	1.00	31.63	L
ATOM	955	O	LEU	125	171.396	23.873	50.503	1.00	28.04	L
ATOM	956	N	THR	126	170.530	23.156	52.454	1.00	34.33	L
ATOM	957	CA	THR	126	170.570	21.741	52.094	1.00	40.34	L
ATOM	958	CB	THR	126	169.981	20.876	53.226	1.00	47.29	L
ATOM	959	OG1	THR	126	170.445	21.364	54.490	1.00	38.65	L
ATOM	960	CG2	THR	126	170.397	19.426	53.063	1.00	58.05	L
ATOM	961	C	THR	126	169.806	21.444	50.796	1.00	47.30	L
ATOM	962	O	THR	126	170.142	20.515	50.063	1.00	54.95	L
ATOM	963	N	SER	127	168.779	22.236	50.513	1.00	57.73	L
ATOM	964	CA	SER	127	167.985	22.042	49.308	1.00	63.60	L
ATOM	965	CB	SER	127	166.551	22.525	49.542	1.00	63.78	L
ATOM	966	OG	SER	127	166.528	23.787	50.186	1.00	64.66	L
ATOM	967	C	SER	127	168.581	22.760	48.096	1.00	67.39	L
ATOM	968	O	SER	127	168.031	22.693	46.994	1.00	73.65	L
ATOM	969	N	GLY	128	169.701	23.446	48.303	1.00	60.63	L
ATOM	970	CA	GLY	128	170.350	24.154	47.209	1.00	50.24	L
ATOM	971	C	GLY	128	169.838	25.563	46.947	1.00	51.09	L
ATOM	972	O	GLY	128	170.151	26.169	45.917	1.00	49.56	L
ATOM	973	N	GLY	129	169.043	26.083	47.877	1.00	48.06	L
ATOM	974	CA	GLY	129	168.507	27.425	47.731	1.00	48.39	L
ATOM	975	C	GLY	129	168.926	28.261	48.919	1.00	45.57	L
ATOM	976	O	GLY	129	169.221	27.719	49.986	1.00	58.83	L
ATOM	977	N	ALA	130	168.964	29.577	48.746	1.00	44.51	L
ATOM	978	CA	ALA	130	169.368	30.467	49.834	1.00	42.67	L
ATOM	979	CB	ALA	130	170.868	30.721	49.766	1.00	41.38	L
ATOM	980	C	ALA	130	168.612	31.784	49.784	1.00	38.53	L
ATOM	981	O	ALA	130	168.661	32.506	48.783	1.00	43.66	L
ATOM	982	N	SER	131	167.923	32.103	50.872	1.00	34.81	L
ATOM	983	CA	SER	131	167.154	33.334	50.936	1.00	28.61	L
ATOM	984	CB	SER	131	165.662	33.019	51.035	1.00	29.28	L
ATOM	985	OG	SER	131	165.165	32.494	49.817	1.00	65.36	L
ATOM	986	C	SER	131	167.568	34.177	52.118	1.00	17.56	L
ATOM	987	O	SER	131	167.547	33.714	53.259	1.00	23.33	L
ATOM	988	N	VAL	132	167.958	35.413	51.842	1.00	21.04	L
ATOM	989	CA	VAL	132	168.353	36.345	52.891	1.00	22.72	L
ATOM	990	CB	VAL	132	169.558	37.211	52.474	1.00	24.09	L
ATOM	991	CG1	VAL	132	170.321	37.669	53.711	1.00	37.12	L
ATOM	992	CG2	VAL	132	170.468	36.420	51.535	1.00	26.09	L
ATOM	993	C	VAL	132	167.143	37.238	53.115	1.00	27.45	L
ATOM	994	O	VAL	132	166.609	37.836	52.179	1.00	34.77	L
ATOM	995	N	VAL	133	166.701	37.314	54.360	1.00	21.35	L
ATOM	996	CA	VAL	133	165.532	38.101	54.688	1.00	15.87	L
ATOM	997	CB	VAL	133	164.483	37.235	55.426	1.00	18.41	L
ATOM	998	CG1	VAL	133	163.382	38.111	56.010	1.00	41.56	L
ATOM	999	CG2	VAL	133	163.900	36.211	54.466	1.00	38.08	L
ATOM	1000	C	VAL	133	165.870	39.296	55.548	1.00	10.26	L

ATOM	1001	O	VAL	133	166.701	39.222	56.454	1.00	24.39	L
ATOM	1002	N	CYS	134	165.206	40.404	55.254	1.00	24.79	L
ATOM	1003	CA	CYS	134	165.412	41.626	55.999	1.00	33.03	L
ATOM	1004	C	CYS	134	164.070	42.163	56.444	1.00	34.77	L
ATOM	1005	O	CYS	134	163.166	42.338	55.631	1.00	37.02	L
ATOM	1006	CB	CYS	134	166.104	42.660	55.127	1.00	37.32	L
ATOM	1007	SG	CYS	134	166.705	44.083	56.077	1.00	64.48	L
ATOM	1008	N	PHE	135	163.946	42.420	57.737	1.00	28.41	L
ATOM	1009	CA	PHE	135	162.710	42.949	58.296	1.00	35.98	L
ATOM	1010	CB	PHE	135	162.297	42.152	59.536	1.00	23.45	L
ATOM	1011	CG	PHE	135	161.854	40.746	59.244	1.00	41.99	L
ATOM	1012	CD1	PHE	135	160.991	40.472	58.187	1.00	58.79	L
ATOM	1013	CD2	PHE	135	162.280	39.696	60.049	1.00	38.90	L
ATOM	1014	CE1	PHE	135	160.555	39.170	57.939	1.00	56.32	L
ATOM	1015	CE2	PHE	135	161.849	38.391	59.810	1.00	57.18	L
ATOM	1016	CZ	PHE	135	160.987	38.127	58.753	1.00	46.88	L
ATOM	1017	C	PHE	135	162.880	44.412	58.696	1.00	37.21	L
ATOM	1018	O	PHE	135	163.841	44.773	59.373	1.00	31.75	L
ATOM	1019	N	LEU	136	161.951	45.253	58.264	1.00	38.27	L
ATOM	1020	CA	LEU	136	161.968	46.665	58.622	1.00	33.10	L
ATOM	1021	CB	LEU	136	162.049	47.531	57.369	1.00	23.62	L
ATOM	1022	CG	LEU	136	163.303	47.259	56.534	1.00	17.58	L
ATOM	1023	CD1	LEU	136	163.055	46.103	55.572	1.00	17.79	L
ATOM	1024	CD2	LEU	136	163.686	48.512	55.770	1.00	29.81	L
ATOM	1025	C	LEU	136	160.632	46.839	59.319	1.00	30.65	L
ATOM	1026	O	LEU	136	159.600	47.002	58.673	1.00	30.43	L
ATOM	1027	N	ASN	137	160.651	46.779	60.643	1.00	35.92	L
ATOM	1028	CA	ASN	137	159.421	46.873	61.400	1.00	43.25	L
ATOM	1029	CB	ASN	137	159.387	45.751	62.433	1.00	42.56	L
ATOM	1030	CG	ASN	137	159.308	44.384	61.793	1.00	30.61	L
ATOM	1031	OD1	ASN	137	159.471	43.356	62.454	1.00	37.72	L
ATOM	1032	ND2	ASN	137	159.057	44.363	60.490	1.00	39.03	L
ATOM	1033	C	ASN	137	159.101	48.199	62.075	1.00	40.01	L
ATOM	1034	O	ASN	137	159.975	49.028	62.305	1.00	39.51	L
ATOM	1035	N	ASN	138	157.813	48.362	62.370	1.00	41.07	L
ATOM	1036	CA	ASN	138	157.239	49.526	63.036	1.00	38.43	L
ATOM	1037	CB	ASN	138	157.227	49.273	64.540	1.00	34.91	L
ATOM	1038	CG	ASN	138	156.667	47.916	64.883	1.00	33.75	L
ATOM	1039	OD1	ASN	138	155.592	47.806	65.459	1.00	29.26	L
ATOM	1040	ND2	ASN	138	157.402	46.864	64.537	1.00	33.12	L
ATOM	1041	C	ASN	138	157.838	50.898	62.749	1.00	31.73	L
ATOM	1042	O	ASN	138	158.582	51.447	63.559	1.00	39.37	L
ATOM	1043	N	PHE	139	157.492	51.458	61.599	1.00	32.60	L
ATOM	1044	CA	PHE	139	157.982	52.770	61.227	1.00	34.36	L
ATOM	1045	CB	PHE	139	159.138	52.644	60.237	1.00	37.95	L
ATOM	1046	CG	PHE	139	158.770	51.972	58.946	1.00	21.99	L
ATOM	1047	CD1	PHE	139	158.295	52.716	57.869	1.00	28.23	L
ATOM	1048	CD2	PHE	139	158.941	50.597	58.792	1.00	23.34	L
ATOM	1049	CE1	PHE	139	157.998	52.102	56.651	1.00	22.39	L
ATOM	1050	CE2	PHE	139	158.646	49.969	57.578	1.00	15.56	L
ATOM	1051	CZ	PHE	139	158.175	50.723	56.505	1.00	21.70	L
ATOM	1052	C	PHE	139	156.868	53.626	60.627	1.00	42.27	L
ATOM	1053	O	PHE	139	155.772	53.142	60.350	1.00	50.50	L

ATOM	1054	N	TYR	140	157.158	54.906	60.444	1.00	53.69	L
ATOM	1055	CA	TYR	140	156.205	55.847	59.883	1.00	47.40	L
ATOM	1056	CB	TYR	140	155.193	56.266	60.942	1.00	53.56	L
ATOM	1057	CG	TYR	140	154.002	56.979	60.360	1.00	71.75	L
ATOM	1058	CD1	TYR	140	154.072	58.331	60.029	1.00	76.99	L
ATOM	1059	CE1	TYR	140	152.978	58.991	59.471	1.00	91.66	L
ATOM	1060	CD2	TYR	140	152.809	56.301	60.119	1.00	85.47	L
ATOM	1061	CE2	TYR	140	151.712	56.948	59.562	1.00	96.08	L
ATOM	1062	CZ	TYR	140	151.803	58.293	59.242	1.00	93.77	L
ATOM	1063	OH	TYR	140	150.716	58.946	58.706	1.00	99.99	L
ATOM	1064	C	TYR	140	156.981	57.065	59.410	1.00	31.82	L
ATOM	1065	O	TYR	140	157.900	57.515	60.088	1.00	34.79	L
ATOM	1066	N	PRO	141	156.631	57.613	58.240	1.00	33.26	L
ATOM	1067	CD	PRO	141	157.366	58.764	57.691	1.00	26.57	L
ATOM	1068	CA	PRO	141	155.566	57.178	57.336	1.00	39.66	L
ATOM	1069	CB	PRO	141	155.450	58.321	56.323	1.00	45.22	L
ATOM	1070	CG	PRO	141	156.359	59.402	56.804	1.00	34.28	L
ATOM	1071	C	PRO	141	155.882	55.860	56.651	1.00	32.49	L
ATOM	1072	O	PRO	141	156.913	55.244	56.913	1.00	34.82	L
ATOM	1073	N	LYS	142	154.986	55.438	55.762	1.00	33.41	L
ATOM	1074	CA	LYS	142	155.157	54.191	55.033	1.00	45.13	L
ATOM	1075	CB	LYS	142	153.862	53.816	54.304	1.00	63.72	L
ATOM	1076	CG	LYS	142	152.851	54.942	54.200	1.00	82.02	L
ATOM	1077	CD	LYS	142	152.005	54.806	52.943	1.00	86.08	L
ATOM	1078	CE	LYS	142	152.031	56.087	52.114	1.00	97.81	L
ATOM	1079	NZ	LYS	142	153.221	56.173	51.209	1.00	100.00	L
ATOM	1080	C	LYS	142	156.290	54.308	54.029	1.00	47.94	L
ATOM	1081	O	LYS	142	156.926	53.320	53.679	1.00	60.89	L
ATOM	1082	N	ASP	143	156.543	55.523	53.565	1.00	61.49	L
ATOM	1083	CA	ASP	143	157.605	55.725	52.603	1.00	70.17	L
ATOM	1084	CB	ASP	143	157.730	57.203	52.259	1.00	86.10	L
ATOM	1085	CG	ASP	143	156.674	57.656	51.286	1.00	99.99	L
ATOM	1086	OD1	ASP	143	155.526	57.891	51.727	1.00	98.78	L
ATOM	1087	OD2	ASP	143	156.992	57.769	50.080	1.00	99.96	L
ATOM	1088	C	ASP	143	158.923	55.207	53.148	1.00	62.40	L
ATOM	1089	O	ASP	143	159.344	55.564	54.251	1.00	47.98	L
ATOM	1090	N	ILE	144	159.563	54.348	52.363	1.00	59.85	L
ATOM	1091	CA	ILE	144	160.839	53.752	52.722	1.00	51.41	L
ATOM	1092	CB	ILE	144	160.664	52.644	53.785	1.00	41.53	L
ATOM	1093	CG2	ILE	144	160.074	51.392	53.155	1.00	34.89	L
ATOM	1094	CG1	ILE	144	162.011	52.320	54.427	1.00	24.47	L
ATOM	1095	CD1	ILE	144	161.892	51.470	55.671	1.00	21.68	L
ATOM	1096	C	ILE	144	161.441	53.160	51.460	1.00	48.41	L
ATOM	1097	O	ILE	144	160.719	52.739	50.557	1.00	31.96	L
ATOM	1098	N	ASN	145	162.765	53.142	51.387	1.00	56.85	L
ATOM	1099	CA	ASN	145	163.447	52.603	50.221	1.00	62.49	L
ATOM	1100	CB	ASN	145	164.063	53.730	49.399	1.00	75.48	L
ATOM	1101	CG	ASN	145	164.104	53.413	47.922	1.00	98.08	L
ATOM	1102	OD1	ASN	145	163.684	54.221	47.094	1.00	99.97	L
ATOM	1103	ND2	ASN	145	164.612	52.231	47.579	1.00	99.99	L
ATOM	1104	C	ASN	145	164.531	51.633	50.650	1.00	52.75	L
ATOM	1105	O	ASN	145	165.530	52.024	51.251	1.00	46.53	L
ATOM	1106	N	VAL	146	164.324	50.362	50.330	1.00	60.86	L

ATOM	1107	CA	VAL	146	165.283	49.327	50.683	1.00	55.40	L
ATOM	1108	CB	VAL	146	164.572	48.048	51.171	1.00	51.60	L
ATOM	1109	CG1	VAL	146	165.593	47.066	51.728	1.00	23.45	L
ATOM	1110	CG2	VAL	146	163.545	48.397	52.234	1.00	57.40	L
ATOM	1111	C	VAL	146	166.158	48.975	49.490	1.00	53.23	L
ATOM	1112	O	VAL	146	165.707	48.977	48.341	1.00	69.79	L
ATOM	1113	N	LYS	147	167.421	48.679	49.775	1.00	49.86	L
ATOM	1114	CA	LYS	147	168.378	48.312	48.746	1.00	42.42	L
ATOM	1115	CB	LYS	147	169.281	49.499	48.413	1.00	47.62	L
ATOM	1116	CG	LYS	147	168.754	50.388	47.302	1.00	79.82	L
ATOM	1117	CD	LYS	147	169.895	51.010	46.512	1.00	86.84	L
ATOM	1118	CE	LYS	147	169.939	52.524	46.691	1.00	93.63	L
ATOM	1119	NZ	LYS	147	170.983	52.943	47.671	1.00	75.73	L
ATOM	1120	C	LYS	147	169.222	47.159	49.265	1.00	35.56	L
ATOM	1121	O	LYS	147	169.545	47.103	50.451	1.00	22.60	L
ATOM	1122	N	TRP	148	169.566	46.236	48.375	1.00	43.57	L
ATOM	1123	CA	TRP	148	170.386	45.095	48.758	1.00	34.06	L
ATOM	1124	CB	TRP	148	169.782	43.796	48.214	1.00	32.94	L
ATOM	1125	CG	TRP	148	168.782	43.185	49.150	1.00	47.82	L
ATOM	1126	CD2	TRP	148	169.062	42.433	50.338	1.00	46.07	L
ATOM	1127	CE2	TRP	148	167.822	42.096	50.923	1.00	40.42	L
ATOM	1128	CE3	TRP	148	170.243	42.012	50.967	1.00	64.21	L
ATOM	1129	CD1	TRP	148	167.420	43.270	49.065	1.00	34.71	L
ATOM	1130	NE1	TRP	148	166.838	42.621	50.125	1.00	38.06	L
ATOM	1131	CZ2	TRP	148	167.725	41.357	52.109	1.00	15.75	L
ATOM	1132	CZ3	TRP	148	170.146	41.277	52.148	1.00	72.60	L
ATOM	1133	CH2	TRP	148	168.894	40.958	52.705	1.00	49.76	L
ATOM	1134	C	TRP	148	171.793	45.269	48.217	1.00	36.36	L
ATOM	1135	O	TRP	148	171.984	45.624	47.055	1.00	34.43	L
ATOM	1136	N	LYS	149	172.784	45.027	49.062	1.00	44.04	L
ATOM	1137	CA	LYS	149	174.157	45.161	48.623	1.00	41.49	L
ATOM	1138	CB	LYS	149	174.820	46.341	49.321	1.00	34.89	L
ATOM	1139	CG	LYS	149	175.080	47.515	48.400	1.00	38.34	L
ATOM	1140	CD	LYS	149	174.417	48.774	48.915	1.00	36.55	L
ATOM	1141	CE	LYS	149	175.294	49.986	48.667	1.00	43.94	L
ATOM	1142	NZ	LYS	149	175.270	50.930	49.819	1.00	55.84	L
ATOM	1143	C	LYS	149	174.937	43.893	48.896	1.00	38.62	L
ATOM	1144	O	LYS	149	175.125	43.505	50.045	1.00	42.16	L
ATOM	1145	N	ILE	150	175.372	43.241	47.825	1.00	22.84	L
ATOM	1146	CA	ILE	150	176.157	42.020	47.938	1.00	24.90	L
ATOM	1147	CB	ILE	150	175.675	40.954	46.958	1.00	42.14	L
ATOM	1148	CG2	ILE	150	176.371	39.642	47.255	1.00	38.41	L
ATOM	1149	CG1	ILE	150	174.159	40.812	47.060	1.00	42.99	L
ATOM	1150	CD1	ILE	150	173.598	39.635	46.309	1.00	32.26	L
ATOM	1151	C	ILE	150	177.600	42.361	47.614	1.00	23.92	L
ATOM	1152	O	ILE	150	177.975	42.479	46.443	1.00	24.95	L
ATOM	1153	N	ASP	151	178.404	42.527	48.658	1.00	48.84	L
ATOM	1154	CA	ASP	151	179.805	42.886	48.488	1.00	63.98	L
ATOM	1155	CB	ASP	151	180.507	41.896	47.547	1.00	74.75	L
ATOM	1156	CG	ASP	151	180.844	40.574	48.223	1.00	76.70	L
ATOM	1157	OD1	ASP	151	180.681	40.465	49.460	1.00	79.84	L
ATOM	1158	OD2	ASP	151	181.274	39.638	47.508	1.00	56.23	L
ATOM	1159	C	ASP	151	179.854	44.300	47.905	1.00	70.87	L

ATOM	1160	O	ASP	151	180.483	44.536	46.868	1.00 70.42	L
ATOM	1161	N	GLY	152	179.172	45.226	48.577	1.00 76.86	L
ATOM	1162	CA	GLY	152	179.139	46.613	48.139	1.00 67.78	L
ATOM	1163	C	GLY	152	178.418	46.840	46.824	1.00 70.46	L
ATOM	1164	O	GLY	152	178.156	47.980	46.438	1.00 79.32	L
ATOM	1165	N	SER	153	178.098	45.754	46.131	1.00 62.96	L
ATOM	1166	CA	SER	153	177.409	45.845	44.856	1.00 60.58	L
ATOM	1167	CB	SER	153	177.840	44.693	43.947	1.00 68.60	L
ATOM	1168	OG	SER	153	178.171	45.160	42.653	1.00 71.40	L
ATOM	1169	C	SER	153	175.902	45.800	45.063	1.00 61.38	L
ATOM	1170	O	SER	153	175.401	45.044	45.895	1.00 59.28	L
ATOM	1171	N	GLU	154	175.183	46.620	44.304	1.00 59.43	L
ATOM	1172	CA	GLU	154	173.731	46.677	44.393	1.00 66.09	L
ATOM	1173	CB	GLU	154	173.222	47.987	43.793	1.00 81.88	L
ATOM	1174	CG	GLU	154	172.299	48.776	44.700	1.00 78.09	L
ATOM	1175	CD	GLU	154	171.857	50.087	44.079	1.00 85.76	L
ATOM	1176	OE1	GLU	154	170.891	50.074	43.283	1.00 65.69	L
ATOM	1177	OE2	GLU	154	172.476	51.131	44.385	1.00 98.75	L
ATOM	1178	C	GLU	154	173.123	45.505	43.635	1.00 78.80	L
ATOM	1179	O	GLU	154	173.476	45.248	42.485	1.00 87.43	L
ATOM	1180	N	ARG	155	172.211	44.791	44.288	1.00 78.61	L
ATOM	1181	CA	ARG	155	171.552	43.654	43.669	1.00 72.18	L
ATOM	1182	CB	ARG	155	171.904	42.371	44.411	1.00 57.25	L
ATOM	1183	CG	ARG	155	172.051	41.177	43.500	1.00 53.97	L
ATOM	1184	CD	ARG	155	170.868	40.250	43.648	1.00 47.95	L
ATOM	1185	NE	ARG	155	170.680	39.401	42.474	1.00 59.26	L
ATOM	1186	CZ	ARG	155	171.533	38.459	42.084	1.00 47.18	L
ATOM	1187	NH1	ARG	155	172.644	38.239	42.776	1.00 58.65	L
ATOM	1188	NH2	ARG	155	171.272	37.731	41.007	1.00 62.18	L
ATOM	1189	C	ARG	155	170.049	43.862	43.692	1.00 76.06	L
ATOM	1190	O	ARG	155	169.470	44.142	44.741	1.00 79.59	L
ATOM	1191	N	GLN	156	169.426	43.726	42.527	1.00 81.46	L
ATOM	1192	CA	GLN	156	167.984	43.913	42.395	1.00 75.51	L
ATOM	1193	CB	GLN	156	167.702	45.122	41.510	1.00 76.21	L
ATOM	1194	CG	GLN	156	168.779	46.179	41.579	1.00 86.59	L
ATOM	1195	CD	GLN	156	168.216	47.575	41.514	1.00 82.98	L
ATOM	1196	OE1	GLN	156	167.460	47.912	40.597	1.00 74.92	L
ATOM	1197	NE2	GLN	156	168.579	48.402	42.486	1.00 79.96	L
ATOM	1198	C	GLN	156	167.308	42.690	41.799	1.00 75.18	L
ATOM	1199	O	GLN	156	166.094	42.663	41.629	1.00 78.45	L
ATOM	1200	N	ASN	157	168.106	41.681	41.485	1.00 69.92	L
ATOM	1201	CA	ASN	157	167.577	40.460	40.909	1.00 62.62	L
ATOM	1202	CB	ASN	157	168.587	39.880	39.912	1.00 83.40	L
ATOM	1203	CG	ASN	157	168.058	38.656	39.189	1.00 96.73	L
ATOM	1204	OD1	ASN	157	168.142	37.534	39.692	1.00 99.98	L
ATOM	1205	ND2	ASN	157	167.509	38.865	38.000	1.00 96.79	L
ATOM	1206	C	ASN	157	167.270	39.440	42.009	1.00 43.07	L
ATOM	1207	O	ASN	157	168.169	38.978	42.711	1.00 51.60	L
ATOM	1208	N	GLY	158	165.994	39.103	42.166	1.00 37.93	L
ATOM	1209	CA	GLY	158	165.613	38.126	43.168	1.00 45.50	L
ATOM	1210	C	GLY	158	165.052	38.719	44.441	1.00 46.88	L
ATOM	1211	O	GLY	158	164.905	38.016	45.438	1.00 46.67	L
ATOM	1212	N	VAL	159	164.730	40.005	44.409	1.00 46.40	L

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ATOM   1213  CA  VAL   159      164.191  40.668  45.582  1.00 48.04      L
ATOM   1214  CB  VAL   159      164.746  42.089  45.707  1.00 46.84      L
ATOM   1215  CG1 VAL   159      164.497  42.616  47.106  1.00 49.41      L
ATOM   1216  CG2 VAL   159      166.234  42.091  45.398  1.00 31.32      L
ATOM   1217  C   VAL   159      162.668  40.738  45.570  1.00 50.14      L
ATOM   1218  O   VAL   159      162.065  41.111  44.563  1.00 70.43      L
ATOM   1219  N   LEU   160      162.060  40.371  46.699  1.00 47.07      L
ATOM   1220  CA  LEU   160      160.606  40.379  46.862  1.00 40.66      L
ATOM   1221  CB  LEU   160      160.060  38.958  46.894  1.00 28.04      L
ATOM   1222  CG  LEU   160      160.148  38.197  45.577  1.00 32.43      L
ATOM   1223  CD1 LEU   160      159.270  36.965  45.669  1.00 37.34      L
ATOM   1224  CD2 LEU   160      159.722  39.095  44.413  1.00  7.94      L
ATOM   1225  C   LEU   160      160.204  41.077  48.151  1.00 42.42      L
ATOM   1226  O   LEU   160      160.474  40.583  49.250  1.00 48.94      L
ATOM   1227  N   ASN   161      159.545  42.220  48.011  1.00 40.58      L
ATOM   1228  CA  ASN   161      159.109  42.996  49.161  1.00 26.69      L
ATOM   1229  CB  ASN   161      159.377  44.477  48.917  1.00 24.90      L
ATOM   1230  CG  ASN   161      160.804  44.746  48.500  1.00 36.23      L
ATOM   1231  OD1 ASN   161      161.743  44.301  49.153  1.00 55.57      L
ATOM   1232  ND2 ASN   161      160.975  45.475  47.407  1.00 47.35      L
ATOM   1233  C   ASN   161      157.637  42.792  49.471  1.00 32.25      L
ATOM   1234  O   ASN   161      156.850  42.415  48.605  1.00 34.73      L
ATOM   1235  N   SER   162      157.276  43.052  50.722  1.00 28.82      L
ATOM   1236  CA  SER   162      155.908  42.907  51.179  1.00 30.10      L
ATOM   1237  CB  SER   162      155.655  41.470  51.623  1.00 25.07      L
ATOM   1238  OG  SER   162      154.368  41.341  52.203  1.00 34.98      L
ATOM   1239  C   SER   162      155.687  43.855  52.349  1.00 28.22      L
ATOM   1240  O   SER   162      156.542  43.949  53.231  1.00 28.01      L
ATOM   1241  N   TRP   163      154.556  44.560  52.346  1.00 44.68      L
ATOM   1242  CA  TRP   163      154.217  45.502  53.413  1.00 47.01      L
ATOM   1243  CB  TRP   163      153.977  46.914  52.865  1.00 47.04      L
ATOM   1244  CG  TRP   163      155.114  47.542  52.139  1.00 50.28      L
ATOM   1245  CD2 TRP   163      155.581  47.209  50.824  1.00 47.77      L
ATOM   1246  CE2 TRP   163      156.655  48.079  50.529  1.00 47.30      L
ATOM   1247  CE3 TRP   163      155.193  46.258  49.865  1.00 36.64      L
ATOM   1248  CD1 TRP   163      155.899  48.573  52.578  1.00 61.33      L
ATOM   1249  NE1 TRP   163      156.828  48.901  51.615  1.00 51.73      L
ATOM   1250  CZ2 TRP   163      157.349  48.028  49.313  1.00 41.27      L
ATOM   1251  CZ3 TRP   163      155.882  46.206  48.655  1.00 43.64      L
ATOM   1252  CH2 TRP   163      156.950  47.089  48.391  1.00 31.42      L
ATOM   1253  C   TRP   163      152.937  45.087  54.111  1.00 47.66      L
ATOM   1254  O   TRP   163      152.056  44.487  53.504  1.00 46.95      L
ATOM   1255  N   THR   164      152.831  45.420  55.389  1.00 42.09      L
ATOM   1256  CA  THR   164      151.623  45.119  56.141  1.00 39.34      L
ATOM   1257  CB  THR   164      151.927  44.805  57.604  1.00 40.04      L
ATOM   1258  OG1 THR   164      152.625  45.911  58.185  1.00 45.73      L
ATOM   1259  CG2 THR   164      152.770  43.552  57.720  1.00 45.43      L
ATOM   1260  C   THR   164      150.804  46.400  56.099  1.00 33.70      L
ATOM   1261  O   THR   164      151.268  47.424  55.597  1.00 27.93      L
ATOM   1262  N   ASP   165      149.584  46.349  56.620  1.00 29.63      L
ATOM   1263  CA  ASP   165      148.739  47.533  56.649  1.00 37.94      L
ATOM   1264  CB  ASP   165      147.261  47.141  56.673  1.00 57.52      L
ATOM   1265  CG  ASP   165      146.784  46.574  55.352  1.00 78.24      L
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ATOM	1266	OD1	ASP	165	147.303	47.005	54.302	1.00	92.25	L
ATOM	1267	OD2	ASP	165	145.891	45.698	55.364	1.00	85.65	L
ATOM	1268	C	ASP	165	149.078	48.282	57.923	1.00	47.66	L
ATOM	1269	O	ASP	165	149.760	47.746	58.792	1.00	50.50	L
ATOM	1270	N	GLN	166	148.609	49.516	58.030	1.00	47.56	L
ATOM	1271	CA	GLN	166	148.850	50.319	59.220	1.00	42.28	L
ATOM	1272	CB	GLN	166	147.982	51.570	59.185	1.00	44.46	L
ATOM	1273	CG	GLN	166	148.213	52.541	60.320	1.00	29.22	L
ATOM	1274	CD	GLN	166	147.967	53.965	59.885	1.00	17.51	L
ATOM	1275	OE1	GLN	166	146.909	54.283	59.343	1.00	43.27	L
ATOM	1276	NE2	GLN	166	148.949	54.830	60.103	1.00	25.31	L
ATOM	1277	C	GLN	166	148.462	49.478	60.422	1.00	38.24	L
ATOM	1278	O	GLN	166	147.361	48.934	60.465	1.00	28.20	L
ATOM	1279	N	ASP	167	149.361	49.364	61.393	1.00	47.65	L
ATOM	1280	CA	ASP	167	149.072	48.577	62.576	1.00	59.05	L
ATOM	1281	CB	ASP	167	150.200	48.691	63.591	1.00	40.82	L
ATOM	1282	CG	ASP	167	150.022	47.742	64.752	1.00	39.12	L
ATOM	1283	OD1	ASP	167	149.966	46.517	64.510	1.00	57.63	L
ATOM	1284	OD2	ASP	167	149.927	48.214	65.902	1.00	58.29	L
ATOM	1285	C	ASP	167	147.768	49.040	63.205	1.00	68.64	L
ATOM	1286	O	ASP	167	147.482	50.237	63.274	1.00	62.87	L
ATOM	1287	N	SER	168	146.978	48.079	63.658	1.00	81.22	L
ATOM	1288	CA	SER	168	145.695	48.374	64.271	1.00	77.38	L
ATOM	1289	CB	SER	168	144.865	47.095	64.370	1.00	77.42	L
ATOM	1290	OG	SER	168	145.397	46.080	63.532	1.00	89.64	L
ATOM	1291	C	SER	168	145.839	48.994	65.651	1.00	79.26	L
ATOM	1292	O	SER	168	144.922	49.650	66.139	1.00	85.04	L
ATOM	1293	N	LYS	169	146.990	48.792	66.282	1.00	71.82	L
ATOM	1294	CA	LYS	169	147.210	49.330	67.617	1.00	55.95	L
ATOM	1295	CB	LYS	169	147.785	48.247	68.534	1.00	74.95	L
ATOM	1296	CG	LYS	169	147.259	46.849	68.253	1.00	84.17	L
ATOM	1297	CD	LYS	169	148.379	45.938	67.762	1.00	83.79	L
ATOM	1298	CE	LYS	169	147.843	44.810	66.885	1.00	85.61	L
ATOM	1299	NZ	LYS	169	148.678	44.588	65.665	1.00	81.34	L
ATOM	1300	C	LYS	169	148.114	50.556	67.658	1.00	46.88	L
ATOM	1301	O	LYS	169	147.720	51.614	68.145	1.00	59.39	L
ATOM	1302	N	ASP	170	149.331	50.418	67.142	1.00	40.42	L
ATOM	1303	CA	ASP	170	150.269	51.532	67.164	1.00	32.11	L
ATOM	1304	CB	ASP	170	151.647	51.033	67.620	1.00	37.35	L
ATOM	1305	CG	ASP	170	152.505	50.537	66.479	1.00	58.55	L
ATOM	1306	OD1	ASP	170	152.200	49.471	65.909	1.00	65.81	L
ATOM	1307	OD2	ASP	170	153.500	51.221	66.162	1.00	76.15	L
ATOM	1308	C	ASP	170	150.370	52.309	65.856	1.00	34.80	L
ATOM	1309	O	ASP	170	151.246	53.159	65.693	1.00	26.65	L
ATOM	1310	N	SER	171	149.466	52.024	64.927	1.00	29.78	L
ATOM	1311	CA	SER	171	149.429	52.719	63.648	1.00	32.11	L
ATOM	1312	CB	SER	171	148.876	54.135	63.845	1.00	36.91	L
ATOM	1313	OG	SER	171	147.612	54.105	64.486	1.00	87.97	L
ATOM	1314	C	SER	171	150.750	52.809	62.894	1.00	34.11	L
ATOM	1315	O	SER	171	151.004	53.807	62.223	1.00	25.60	L
ATOM	1316	N	THR	172	151.591	51.783	62.993	1.00	30.87	L
ATOM	1317	CA	THR	172	152.866	51.788	62.271	1.00	19.30	L
ATOM	1318	CB	THR	172	154.046	51.292	63.129	1.00	41.47	L

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ATOM   1319  OG1 THR   172      153.590  50.286  64.039  1.00 61.43      L
ATOM   1320  CG2 THR   172      154.686  52.449  63.876  1.00 35.62      L
ATOM   1321  C   THR   172      152.807  50.877  61.058  1.00 25.70      L
ATOM   1322  O   THR   172      151.812  50.189  60.826  1.00 23.98      L
ATOM   1323  N   TYR   173      153.892  50.871  60.295  1.00 30.31      L
ATOM   1324  CA  TYR   173      153.985  50.042  59.109  1.00 21.84      L
ATOM   1325  CB  TYR   173      154.167  50.911  57.863  1.00 39.03      L
ATOM   1326  CG  TYR   173      152.916  51.668  57.487  1.00 42.99      L
ATOM   1327  CD1 TYR   173      151.794  50.994  57.008  1.00 41.83      L
ATOM   1328  CE1 TYR   173      150.621  51.678  56.709  1.00 59.78      L
ATOM   1329  CD2 TYR   173      152.834  53.050  57.651  1.00 48.81      L
ATOM   1330  CE2 TYR   173      151.663  53.745  57.355  1.00 38.39      L
ATOM   1331  CZ  TYR   173      150.560  53.052  56.888  1.00 60.04      L
ATOM   1332  OH  TYR   173      149.392  53.723  56.607  1.00 65.26      L
ATOM   1333  C   TYR   173      155.160  49.098  59.245  1.00 30.15      L
ATOM   1334  O   TYR   173      156.089  49.350  60.009  1.00 35.37      L
ATOM   1335  N   SER   174      155.111  48.005  58.505  1.00 26.54      L
ATOM   1336  CA  SER   174      156.184  47.035  58.539  1.00 25.11      L
ATOM   1337  CB  SER   174      155.832  45.874  59.467  1.00 32.70      L
ATOM   1338  OG  SER   174      156.004  46.246  60.824  1.00 23.41      L
ATOM   1339  C   SER   174      156.394  46.518  57.136  1.00 28.29      L
ATOM   1340  O   SER   174      155.475  46.515  56.314  1.00 22.73      L
ATOM   1341  N   MET   175      157.614  46.093  56.857  1.00 29.61      L
ATOM   1342  CA  MET   175      157.925  45.571  55.552  1.00 24.86      L
ATOM   1343  CB  MET   175      158.423  46.693  54.646  1.00 16.99      L
ATOM   1344  CG  MET   175      159.379  46.232  53.575  1.00  9.33      L
ATOM   1345  SD  MET   175      159.949  47.595  52.577  1.00 36.70      L
ATOM   1346  CE  MET   175      160.270  46.761  51.036  1.00 45.25      L
ATOM   1347  C   MET   175      158.986  44.498  55.686  1.00 31.31      L
ATOM   1348  O   MET   175      159.800  44.522  56.615  1.00 32.20      L
ATOM   1349  N   SER   176      158.947  43.544  54.765  1.00 27.89      L
ATOM   1350  CA  SER   176      159.916  42.462  54.737  1.00 33.91      L
ATOM   1351  CB  SER   176      159.263  41.137  55.135  1.00 32.59      L
ATOM   1352  OG  SER   176      159.019  40.331  53.997  1.00 35.30      L
ATOM   1353  C   SER   176      160.435  42.382  53.312  1.00 22.54      L
ATOM   1354  O   SER   176      159.669  42.497  52.356  1.00 28.72      L
ATOM   1355  N   SER   177      161.743  42.210  53.169  1.00 21.03      L
ATOM   1356  CA  SER   177      162.355  42.107  51.856  1.00 27.57      L
ATOM   1357  CB  SER   177      163.231  43.320  51.574  1.00 32.40      L
ATOM   1358  OG  SER   177      163.713  43.272  50.245  1.00 27.68      L
ATOM   1359  C   SER   177      163.196  40.847  51.802  1.00 22.76      L
ATOM   1360  O   SER   177      164.047  40.621  52.661  1.00 33.72      L
ATOM   1361  N   THR   178      162.956  40.026  50.788  1.00 18.89      L
ATOM   1362  CA  THR   178      163.687  38.780  50.656  1.00 16.96      L
ATOM   1363  CB  THR   178      162.740  37.580  50.740  1.00 21.10      L
ATOM   1364  OG1 THR   178      161.938  37.681  51.922  1.00 36.63      L
ATOM   1365  CG2 THR   178      163.533  36.285  50.782  1.00 22.64      L
ATOM   1366  C   THR   178      164.481  38.675  49.362  1.00 21.04      L
ATOM   1367  O   THR   178      163.949  38.878  48.266  1.00 32.90      L
ATOM   1368  N   LEU   179      165.764  38.358  49.515  1.00 23.97      L
ATOM   1369  CA  LEU   179      166.679  38.183  48.395  1.00 27.62      L
ATOM   1370  CB  LEU   179      168.000  38.899  48.669  1.00 25.50      L
ATOM   1371  CG  LEU   179      169.043  38.856  47.557  1.00 25.95      L
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ATOM	1372	CD1	LEU	179	168.487	39.491	46.291	1.00 44.04	L
ATOM	1373	CD2	LEU	179	170.289	39.591	48.025	1.00 24.41	L
ATOM	1374	C	LEU	179	166.920	36.687	48.293	1.00 22.54	L
ATOM	1375	O	LEU	179	167.417	36.070	49.236	1.00 16.26	L
ATOM	1376	N	THR	180	166.558	36.110	47.153	1.00 27.81	L
ATOM	1377	CA	THR	180	166.699	34.675	46.941	1.00 38.84	L
ATOM	1378	CB	THR	180	165.343	34.060	46.531	1.00 58.84	L
ATOM	1379	OG1	THR	180	164.391	34.253	47.585	1.00 69.01	L
ATOM	1380	CG2	THR	180	165.489	32.571	46.243	1.00 65.13	L
ATOM	1381	C	THR	180	167.744	34.304	45.893	1.00 38.32	L
ATOM	1382	O	THR	180	167.658	34.715	44.733	1.00 23.89	L
ATOM	1383	N	LEU	181	168.726	33.515	46.318	1.00 50.48	L
ATOM	1384	CA	LEU	181	169.796	33.059	45.439	1.00 54.78	L
ATOM	1385	CB	LEU	181	171.118	33.751	45.782	1.00 57.52	L
ATOM	1386	CG	LEU	181	171.097	35.239	46.126	1.00 52.16	L
ATOM	1387	CD1	LEU	181	171.777	35.466	47.468	1.00 64.66	L
ATOM	1388	CD2	LEU	181	171.800	36.017	45.032	1.00 59.17	L
ATOM	1389	C	LEU	181	169.978	31.558	45.595	1.00 45.72	L
ATOM	1390	O	LEU	181	169.250	30.904	46.347	1.00 53.82	L
ATOM	1391	N	THR	182	170.964	31.021	44.882	1.00 33.32	L
ATOM	1392	CA	THR	182	171.268	29.601	44.935	1.00 32.86	L
ATOM	1393	CB	THR	182	171.740	29.086	43.571	1.00 35.79	L
ATOM	1394	OG1	THR	182	172.994	29.694	43.241	1.00 51.80	L
ATOM	1395	CG2	THR	182	170.726	29.434	42.497	1.00 10.97	L
ATOM	1396	C	THR	182	172.371	29.340	45.955	1.00 31.89	L
ATOM	1397	O	THR	182	173.084	30.256	46.366	1.00 22.49	L
ATOM	1398	N	LYS	183	172.498	28.086	46.369	1.00 18.19	L
ATOM	1399	CA	LYS	183	173.521	27.703	47.326	1.00 22.39	L
ATOM	1400	CB	LYS	183	173.539	26.186	47.492	1.00 27.09	L
ATOM	1401	CG	LYS	183	173.959	25.715	48.868	1.00 21.06	L
ATOM	1402	CD	LYS	183	174.795	24.443	48.785	1.00 28.23	L
ATOM	1403	CE	LYS	183	175.371	24.075	50.148	1.00 65.45	L
ATOM	1404	NZ	LYS	183	176.860	24.085	50.151	1.00 66.90	L
ATOM	1405	C	LYS	183	174.847	28.168	46.750	1.00 30.33	L
ATOM	1406	O	LYS	183	175.732	28.640	47.462	1.00 47.79	L
ATOM	1407	N	ASP	184	174.957	28.044	45.436	1.00 33.23	L
ATOM	1408	CA	ASP	184	176.162	28.422	44.729	1.00 32.28	L
ATOM	1409	CB	ASP	184	176.089	27.931	43.290	1.00 41.02	L
ATOM	1410	CG	ASP	184	176.041	26.424	43.199	1.00 63.85	L
ATOM	1411	OD1	ASP	184	176.516	25.754	44.147	1.00 80.57	L
ATOM	1412	OD2	ASP	184	175.530	25.907	42.185	1.00 76.42	L
ATOM	1413	C	ASP	184	176.443	29.910	44.747	1.00 37.31	L
ATOM	1414	O	ASP	184	177.250	30.379	45.547	1.00 58.28	L
ATOM	1415	N	GLU	185	175.770	30.652	43.873	1.00 33.24	L
ATOM	1416	CA	GLU	185	175.994	32.088	43.781	1.00 36.62	L
ATOM	1417	CB	GLU	185	175.088	32.691	42.702	1.00 37.34	L
ATOM	1418	CG	GLU	185	173.899	33.484	43.198	1.00 71.02	L
ATOM	1419	CD	GLU	185	172.973	33.876	42.058	1.00 78.07	L
ATOM	1420	OE1	GLU	185	173.399	34.680	41.198	1.00 94.70	L
ATOM	1421	OE2	GLU	185	171.826	33.378	42.020	1.00 82.48	L
ATOM	1422	C	GLU	185	175.870	32.849	45.095	1.00 40.77	L
ATOM	1423	O	GLU	185	176.154	34.039	45.144	1.00 28.19	L
ATOM	1424	N	TYR	186	175.455	32.171	46.160	1.00 45.72	L

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ATOM   1425  CA  TYR   186      175.357  32.824  47.461  1.00 31.13      L
ATOM   1426  CB  TYR   186      174.183  32.284  48.271  1.00 29.29      L
ATOM   1427  CG  TYR   186      174.394  32.396  49.769  1.00 30.13      L
ATOM   1428  CD1 TYR   186      174.131  33.590  50.447  1.00 33.39      L
ATOM   1429  CE1 TYR   186      174.314  33.694  51.833  1.00 36.37      L
ATOM   1430  CD2 TYR   186      174.850  31.310  50.509  1.00 34.49      L
ATOM   1431  CE2 TYR   186      175.036  31.402  51.893  1.00 18.79      L
ATOM   1432  CZ  TYR   186      174.766  32.594  52.549  1.00 34.18      L
ATOM   1433  OH  TYR   186      174.933  32.673  53.913  1.00 39.71      L
ATOM   1434  C   TYR   186      176.641  32.530  48.224  1.00 25.69      L
ATOM   1435  O   TYR   186      177.138  33.358  48.985  1.00 46.65      L
ATOM   1436  N   GLU   187      177.163  31.327  48.025  1.00 33.86      L
ATOM   1437  CA  GLU   187      178.380  30.916  48.695  1.00 30.31      L
ATOM   1438  CB  GLU   187      178.478  29.394  48.707  1.00 51.43      L
ATOM   1439  CG  GLU   187      177.688  28.757  49.831  1.00 68.32      L
ATOM   1440  CD  GLU   187      177.931  27.269  49.944  1.00 84.34      L
ATOM   1441  OE1 GLU   187      178.505  26.681  49.000  1.00 72.88      L
ATOM   1442  OE2 GLU   187      177.540  26.690  50.980  1.00 92.94      L
ATOM   1443  C   GLU   187      179.608  31.516  48.021  1.00 25.34      L
ATOM   1444  O   GLU   187      180.731  31.319  48.476  1.00 33.80      L
ATOM   1445  N   ARG   188      179.393  32.255  46.937  1.00 25.18      L
ATOM   1446  CA  ARG   188      180.504  32.887  46.238  1.00 28.26      L
ATOM   1447  CB  ARG   188      180.430  32.583  44.732  1.00 50.64      L
ATOM   1448  CG  ARG   188      179.374  33.352  43.952  1.00 42.62      L
ATOM   1449  CD  ARG   188      179.332  32.895  42.493  1.00 43.87      L
ATOM   1450  NE  ARG   188      179.213  31.440  42.378  1.00 93.56      L
ATOM   1451  CZ  ARG   188      180.106  30.659  41.779  1.00 99.99      L
ATOM   1452  NH1 ARG   188      181.192  31.187  41.230  1.00 99.99      L
ATOM   1453  NH2 ARG   188      179.918  29.345  41.733  1.00 99.98      L
ATOM   1454  C   ARG   188      180.549  34.399  46.490  1.00 22.65      L
ATOM   1455  O   ARG   188      181.077  35.160  45.679  1.00 30.16      L
ATOM   1456  N   HIS   189      180.001  34.819  47.626  1.00 27.86      L
ATOM   1457  CA  HIS   189      179.979  36.223  48.023  1.00 21.88      L
ATOM   1458  CB  HIS   189      178.650  36.871  47.650  1.00 40.07      L
ATOM   1459  CG  HIS   189      178.480  37.107  46.182  1.00 47.15      L
ATOM   1460  CD2 HIS   189      178.796  38.171  45.405  1.00 55.79      L
ATOM   1461  ND1 HIS   189      177.891  36.185  45.342  1.00 63.86      L
ATOM   1462  CE1 HIS   189      177.849  36.672  44.115  1.00 61.64      L
ATOM   1463  NE2 HIS   189      178.391  37.876  44.127  1.00 60.31      L
ATOM   1464  C   HIS   189      180.152  36.239  49.531  1.00 29.34      L
ATOM   1465  O   HIS   189      179.750  35.291  50.205  1.00 34.87      L
ATOM   1466  N   ASN   190      180.729  37.309  50.067  1.00 37.34      L
ATOM   1467  CA  ASN   190      180.961  37.379  51.507  1.00 47.66      L
ATOM   1468  CB  ASN   190      182.388  37.855  51.795  1.00 68.12      L
ATOM   1469  CG  ASN   190      183.417  37.167  50.930  1.00100.00      L
ATOM   1470  OD1 ASN   190      183.407  35.945  50.784  1.00 99.97      L
ATOM   1471  ND2 ASN   190      184.320  37.954  50.350  1.00 99.98      L
ATOM   1472  C   ASN   190      180.001  38.252  52.290  1.00 42.97      L
ATOM   1473  O   ASN   190      179.383  37.797  53.259  1.00 33.80      L
ATOM   1474  N   SER   191      179.885  39.511  51.892  1.00 39.67      L
ATOM   1475  CA  SER   191      179.010  40.419  52.614  1.00 30.33      L
ATOM   1476  CB  SER   191      179.698  41.774  52.801  1.00 31.09      L
ATOM   1477  OG  SER   191      179.887  42.056  54.177  1.00 59.06      L
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ATOM	1478	C	SER	191	177.655	40.634	51.967	1.00	34.40	L
ATOM	1479	O	SER	191	177.550	40.836	50.753	1.00	48.04	L
ATOM	1480	N	TYR	192	176.620	40.574	52.802	1.00	25.05	L
ATOM	1481	CA	TYR	192	175.246	40.785	52.361	1.00	22.04	L
ATOM	1482	CB	TYR	192	174.420	39.517	52.582	1.00	16.56	L
ATOM	1483	CG	TYR	192	174.807	38.444	51.598	1.00	33.82	L
ATOM	1484	CD1	TYR	192	174.383	38.511	50.273	1.00	39.72	L
ATOM	1485	CE1	TYR	192	174.829	37.592	49.330	1.00	33.77	L
ATOM	1486	CD2	TYR	192	175.683	37.417	51.961	1.00	36.76	L
ATOM	1487	CE2	TYR	192	176.135	36.492	51.024	1.00	36.40	L
ATOM	1488	CZ	TYR	192	175.707	36.587	49.711	1.00	39.55	L
ATOM	1489	OH	TYR	192	176.164	35.693	48.766	1.00	31.96	L
ATOM	1490	C	TYR	192	174.705	41.961	53.160	1.00	26.50	L
ATOM	1491	O	TYR	192	174.749	41.970	54.389	1.00	26.85	L
ATOM	1492	N	THR	193	174.205	42.959	52.443	1.00	42.59	L
ATOM	1493	CA	THR	193	173.716	44.165	53.086	1.00	49.57	L
ATOM	1494	CB	THR	193	174.621	45.362	52.738	1.00	59.55	L
ATOM	1495	OG1	THR	193	175.983	45.025	53.025	1.00	51.20	L
ATOM	1496	CG2	THR	193	174.219	46.592	53.536	1.00	59.94	L
ATOM	1497	C	THR	193	172.285	44.574	52.777	1.00	46.91	L
ATOM	1498	O	THR	193	171.848	44.573	51.621	1.00	57.88	L
ATOM	1499	N	CYS	194	171.578	44.946	53.836	1.00	40.06	L
ATOM	1500	CA	CYS	194	170.208	45.409	53.738	1.00	39.66	L
ATOM	1501	C	CYS	194	170.229	46.894	54.090	1.00	50.91	L
ATOM	1502	O	CYS	194	170.419	47.263	55.253	1.00	50.44	L
ATOM	1503	CB	CYS	194	169.326	44.652	54.719	1.00	56.36	L
ATOM	1504	SG	CYS	194	167.606	45.219	54.662	1.00	57.55	L
ATOM	1505	N	GLU	195	170.039	47.734	53.080	1.00	62.99	L
ATOM	1506	CA	GLU	195	170.066	49.182	53.262	1.00	56.68	L
ATOM	1507	CB	GLU	195	171.006	49.802	52.231	1.00	67.85	L
ATOM	1508	CG	GLU	195	171.618	51.121	52.650	1.00	75.89	L
ATOM	1509	CD	GLU	195	172.492	51.711	51.560	1.00	66.08	L
ATOM	1510	OE1	GLU	195	171.941	52.170	50.533	1.00	83.91	L
ATOM	1511	OE2	GLU	195	173.731	51.710	51.731	1.00	69.63	L
ATOM	1512	C	GLU	195	168.689	49.812	53.128	1.00	41.96	L
ATOM	1513	O	GLU	195	167.926	49.466	52.224	1.00	46.93	L
ATOM	1514	N	ALA	196	168.381	50.755	54.014	1.00	39.48	L
ATOM	1515	CA	ALA	196	167.085	51.419	53.983	1.00	55.44	L
ATOM	1516	CB	ALA	196	166.114	50.674	54.880	1.00	62.95	L
ATOM	1517	C	ALA	196	167.111	52.897	54.375	1.00	56.78	L
ATOM	1518	O	ALA	196	167.572	53.254	55.460	1.00	57.46	L
ATOM	1519	N	THR	197	166.606	53.748	53.484	1.00	59.26	L
ATOM	1520	CA	THR	197	166.532	55.186	53.738	1.00	71.50	L
ATOM	1521	CB	THR	197	166.971	56.023	52.502	1.00	77.13	L
ATOM	1522	OG1	THR	197	166.548	55.374	51.295	1.00	83.37	L
ATOM	1523	CG2	THR	197	168.486	56.185	52.483	1.00	62.62	L
ATOM	1524	C	THR	197	165.086	55.538	54.086	1.00	73.26	L
ATOM	1525	O	THR	197	164.155	55.182	53.362	1.00	73.27	L
ATOM	1526	N	HIS	198	164.901	56.233	55.200	1.00	66.28	L
ATOM	1527	CA	HIS	198	163.570	56.617	55.655	1.00	65.29	L
ATOM	1528	CB	HIS	198	163.203	55.777	56.889	1.00	59.65	L
ATOM	1529	CG	HIS	198	161.802	55.976	57.386	1.00	50.05	L
ATOM	1530	CD2	HIS	198	161.333	56.281	58.619	1.00	10.46	L

ATOM	1531	ND1	HIS	198	160.691	55.811	56.586	1.00	23.72	L
ATOM	1532	CE1	HIS	198	159.601	56.009	57.306	1.00	8.26	L
ATOM	1533	NE2	HIS	198	159.962	56.295	58.545	1.00	26.12	L
ATOM	1534	C	HIS	198	163.611	58.101	56.001	1.00	65.53	L
ATOM	1535	O	HIS	198	164.642	58.601	56.446	1.00	44.38	L
ATOM	1536	N	LYS	199	162.501	58.804	55.776	1.00	69.60	L
ATOM	1537	CA	LYS	199	162.407	60.235	56.078	1.00	62.83	L
ATOM	1538	CB	LYS	199	160.940	60.665	56.214	1.00	59.10	L
ATOM	1539	CG	LYS	199	160.168	60.725	54.908	1.00	66.79	L
ATOM	1540	CD	LYS	199	159.541	59.376	54.566	1.00	77.11	L
ATOM	1541	CE	LYS	199	160.458	58.543	53.670	1.00	66.29	L
ATOM	1542	NZ	LYS	199	160.372	58.922	52.226	1.00	71.28	L
ATOM	1543	C	LYS	199	163.100	60.459	57.409	1.00	54.65	L
ATOM	1544	O	LYS	199	163.853	61.418	57.596	1.00	52.78	L
ATOM	1545	N	THR	200	162.823	59.538	58.322	1.00	59.05	L
ATOM	1546	CA	THR	200	163.361	59.542	59.668	1.00	72.79	L
ATOM	1547	CB	THR	200	162.896	58.262	60.404	1.00	72.74	L
ATOM	1548	OG1	THR	200	162.485	58.594	61.732	1.00	81.55	L
ATOM	1549	CG2	THR	200	164.002	57.222	60.439	1.00	67.03	L
ATOM	1550	C	THR	200	164.890	59.648	59.712	1.00	77.51	L
ATOM	1551	O	THR	200	165.479	59.774	60.785	1.00	76.37	L
ATOM	1552	N	SER	201	165.536	59.607	58.550	1.00	82.04	L
ATOM	1553	CA	SER	201	166.991	59.696	58.521	1.00	77.00	L
ATOM	1554	CB	SER	201	167.599	58.411	59.082	1.00	70.20	L
ATOM	1555	OG	SER	201	168.828	58.678	59.728	1.00	48.40	L
ATOM	1556	C	SER	201	167.583	59.967	57.145	1.00	75.86	L
ATOM	1557	O	SER	201	167.126	59.436	56.129	1.00	78.72	L
ATOM	1558	N	THR	202	168.617	60.802	57.128	1.00	79.38	L
ATOM	1559	CA	THR	202	169.317	61.144	55.897	1.00	85.40	L
ATOM	1560	CB	THR	202	169.864	62.586	55.942	1.00	82.98	L
ATOM	1561	OG1	THR	202	170.536	62.807	57.190	1.00	58.44	L
ATOM	1562	CG2	THR	202	168.725	63.591	55.800	1.00	81.93	L
ATOM	1563	C	THR	202	170.481	60.165	55.752	1.00	87.12	L
ATOM	1564	O	THR	202	171.106	60.069	54.697	1.00	90.15	L
ATOM	1565	N	SER	203	170.757	59.442	56.835	1.00	85.15	L
ATOM	1566	CA	SER	203	171.826	58.452	56.866	1.00	85.74	L
ATOM	1567	CB	SER	203	172.589	58.538	58.194	1.00	91.67	L
ATOM	1568	OG	SER	203	172.049	59.540	59.041	1.00	86.93	L
ATOM	1569	C	SER	203	171.203	57.069	56.719	1.00	87.87	L
ATOM	1570	O	SER	203	170.682	56.508	57.686	1.00	84.65	L
ATOM	1571	N	PRO	204	171.244	56.501	55.502	1.00	89.56	L
ATOM	1572	CD	PRO	204	171.858	57.072	54.292	1.00	93.06	L
ATOM	1573	CA	PRO	204	170.672	55.176	55.244	1.00	82.77	L
ATOM	1574	CB	PRO	204	171.269	54.772	53.888	1.00	81.38	L
ATOM	1575	CG	PRO	204	172.262	55.855	53.525	1.00	78.75	L
ATOM	1576	C	PRO	204	171.002	54.167	56.335	1.00	76.12	L
ATOM	1577	O	PRO	204	172.169	53.960	56.656	1.00	79.62	L
ATOM	1578	N	ILE	205	169.971	53.557	56.911	1.00	69.79	L
ATOM	1579	CA	ILE	205	170.172	52.556	57.953	1.00	59.52	L
ATOM	1580	CB	ILE	205	168.862	52.224	58.675	1.00	59.30	L
ATOM	1581	CG2	ILE	205	169.124	51.192	59.763	1.00	62.73	L
ATOM	1582	CG1	ILE	205	168.264	53.503	59.263	1.00	51.85	L
ATOM	1583	CD1	ILE	205	166.912	53.310	59.921	1.00	48.97	L

ATOM	1584	C	ILE	205	170.711	51.294	57.294	1.00	58.53	L
ATOM	1585	O	ILE	205	170.225	50.873	56.241	1.00	60.90	L
ATOM	1586	N	VAL	206	171.719	50.691	57.918	1.00	53.53	L
ATOM	1587	CA	VAL	206	172.332	49.498	57.356	1.00	41.22	L
ATOM	1588	CB	VAL	206	173.739	49.825	56.810	1.00	18.34	L
ATOM	1589	CG1	VAL	206	174.486	48.548	56.467	1.00	13.15	L
ATOM	1590	CG2	VAL	206	173.618	50.706	55.580	1.00	13.65	L
ATOM	1591	C	VAL	206	172.442	48.336	58.331	1.00	44.96	L
ATOM	1592	O	VAL	206	172.747	48.517	59.509	1.00	44.72	L
ATOM	1593	N	LYS	207	172.180	47.137	57.818	1.00	51.44	L
ATOM	1594	CA	LYS	207	172.269	45.915	58.598	1.00	52.57	L
ATOM	1595	CB	LYS	207	170.882	45.438	59.020	1.00	54.70	L
ATOM	1596	CG	LYS	207	170.800	45.038	60.479	1.00	47.68	L
ATOM	1597	CD	LYS	207	171.141	46.206	61.394	1.00	42.68	L
ATOM	1598	CE	LYS	207	170.477	46.060	62.758	1.00	53.93	L
ATOM	1599	NZ	LYS	207	170.763	44.740	63.395	1.00	56.72	L
ATOM	1600	C	LYS	207	172.906	44.900	57.671	1.00	51.25	L
ATOM	1601	O	LYS	207	172.357	44.592	56.610	1.00	57.87	L
ATOM	1602	N	SER	208	174.072	44.396	58.059	1.00	48.56	L
ATOM	1603	CA	SER	208	174.780	43.429	57.230	1.00	44.28	L
ATOM	1604	CB	SER	208	175.956	44.095	56.525	1.00	43.06	L
ATOM	1605	OG	SER	208	175.511	45.119	55.659	1.00	64.64	L
ATOM	1606	C	SER	208	175.301	42.236	58.003	1.00	46.92	L
ATOM	1607	O	SER	208	175.121	42.129	59.221	1.00	49.18	L
ATOM	1608	N	PHE	209	175.950	41.342	57.269	1.00	47.47	L
ATOM	1609	CA	PHE	209	176.539	40.152	57.850	1.00	48.36	L
ATOM	1610	CB	PHE	209	175.443	39.170	58.296	1.00	58.47	L
ATOM	1611	CG	PHE	209	174.804	38.414	57.168	1.00	68.93	L
ATOM	1612	CD1	PHE	209	173.734	38.960	56.471	1.00	77.87	L
ATOM	1613	CD2	PHE	209	175.280	37.161	56.793	1.00	73.00	L
ATOM	1614	CE1	PHE	209	173.148	38.270	55.411	1.00	71.56	L
ATOM	1615	CE2	PHE	209	174.703	36.461	55.736	1.00	64.61	L
ATOM	1616	CZ	PHE	209	173.633	37.017	55.043	1.00	71.74	L
ATOM	1617	C	PHE	209	177.481	39.498	56.851	1.00	44.99	L
ATOM	1618	O	PHE	209	177.336	39.658	55.637	1.00	35.92	L
ATOM	1619	N	ASN	210	178.463	38.782	57.384	1.00	56.65	L
ATOM	1620	CA	ASN	210	179.444	38.079	56.572	1.00	60.29	L
ATOM	1621	CB	ASN	210	180.853	38.402	57.064	1.00	70.34	L
ATOM	1622	CG	ASN	210	181.925	37.920	56.112	1.00	100.00	L
ATOM	1623	OD1	ASN	210	182.386	38.670	55.250	1.00	99.98	L
ATOM	1624	ND2	ASN	210	182.328	36.658	56.258	1.00	100.00	L
ATOM	1625	C	ASN	210	179.165	36.592	56.741	1.00	63.50	L
ATOM	1626	O	ASN	210	178.624	36.183	57.763	1.00	79.33	L
ATOM	1627	N	ARG	211	179.524	35.780	55.756	1.00	60.96	L
ATOM	1628	CA	ARG	211	179.284	34.350	55.872	1.00	67.53	L
ATOM	1629	CB	ARG	211	179.672	33.644	54.576	1.00	53.17	L
ATOM	1630	CG	ARG	211	178.475	33.141	53.792	1.00	46.30	L
ATOM	1631	CD	ARG	211	178.602	33.466	52.320	1.00	24.02	L
ATOM	1632	NE	ARG	211	179.366	32.449	51.606	1.00	24.23	L
ATOM	1633	CZ	ARG	211	180.693	32.431	51.527	1.00	46.60	L
ATOM	1634	NH1	ARG	211	181.411	33.377	52.118	1.00	74.04	L
ATOM	1635	NH2	ARG	211	181.307	31.466	50.863	1.00	58.03	L
ATOM	1636	C	ARG	211	180.041	33.746	57.060	1.00	78.01	L

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ATOM   1637  O   ARG   211      181.277  33.714  57.080  1.00 62.45      L
ATOM   1638  N   ASN   212      179.264  33.284  58.046  1.00 96.28      L
ATOM   1639  CA  ASN   212      179.747  32.661  59.288  1.00 99.99      L
ATOM   1640  CB  ASN   212      181.065  31.915  59.055  1.00 99.98      L
ATOM   1641  CG  ASN   212      181.130  30.602  59.816  1.00100.00      L
ATOM   1642  OD1 ASN   212      180.343  30.360  60.738  1.00 94.94      L
ATOM   1643  ND2 ASN   212      182.070  29.743  59.434  1.00 99.99      L
ATOM   1644  C   ASN   212      179.918  33.640  60.455  1.00 99.98      L
ATOM   1645  O   ASN   212      180.791  34.533  60.359  1.00 99.99      L
ATOM   1646  OT  ASN   212      181.064  34.157  61.055  1.00 99.99      L
ATOM   1647  CB  VAL     2      121.621  36.267  64.620  1.00 37.38      H
ATOM   1648  CG1 VAL     2      120.401  36.241  65.515  1.00 27.71      H
ATOM   1649  CG2 VAL     2      122.281  37.627  64.680  1.00 34.18      H
ATOM   1650  C   VAL     2      123.855  35.223  64.193  1.00 42.92      H
ATOM   1651  O   VAL     2      124.332  36.300  63.840  1.00 42.57      H
ATOM   1652  N   VAL     2      122.979  35.304  66.494  1.00 47.65      H
ATOM   1653  CA  VAL     2      122.610  35.160  65.057  1.00 44.59      H
ATOM   1654  N   GLN     3      124.382  34.056  63.852  1.00 45.14      H
ATOM   1655  CA  GLN     3      125.594  33.990  63.047  1.00 47.76      H
ATOM   1656  CB  GLN     3      126.585  33.018  63.684  1.00 47.79      H
ATOM   1657  CG  GLN     3      128.013  33.216  63.226  1.00 70.50      H
ATOM   1658  CD  GLN     3      128.654  31.926  62.768  1.00 77.13      H
ATOM   1659  OE1 GLN     3      128.477  30.879  63.392  1.00 89.69      H
ATOM   1660  NE2 GLN     3      129.403  31.990  61.671  1.00 74.80      H
ATOM   1661  C   GLN     3      125.324  33.576  61.605  1.00 43.77      H
ATOM   1662  O   GLN     3      124.223  33.144  61.264  1.00 28.11      H
ATOM   1663  N   LEU     4      126.341  33.721  60.761  1.00 43.76      H
ATOM   1664  CA  LEU     4      126.231  33.358  59.356  1.00 47.78      H
ATOM   1665  CB  LEU     4      126.061  34.620  58.502  1.00 41.23      H
ATOM   1666  CG  LEU     4      125.041  34.700  57.351  1.00 30.41      H
ATOM   1667  CD1 LEU     4      124.005  33.592  57.439  1.00 25.02      H
ATOM   1668  CD2 LEU     4      124.353  36.059  57.404  1.00 18.34      H
ATOM   1669  C   LEU     4      127.499  32.620  58.945  1.00 47.69      H
ATOM   1670  O   LEU     4      128.468  33.245  58.524  1.00 52.13      H
ATOM   1671  N   GLN     5      127.500  31.296  59.081  1.00 46.16      H
ATOM   1672  CA  GLN     5      128.669  30.500  58.706  1.00 47.49      H
ATOM   1673  CB  GLN     5      128.591  29.109  59.335  1.00 47.97      H
ATOM   1674  CG  GLN     5      129.142  29.029  60.747  1.00 41.56      H
ATOM   1675  CD  GLN     5      128.328  28.100  61.633  1.00 64.06      H
ATOM   1676  OE1 GLN     5      128.475  26.874  61.573  1.00 60.56      H
ATOM   1677  NE2 GLN     5      127.459  28.681  62.459  1.00 60.41      H
ATOM   1678  C   GLN     5      128.764  30.379  57.187  1.00 36.59      H
ATOM   1679  O   GLN     5      127.760  30.146  56.519  1.00 31.08      H
ATOM   1680  N   GLN     6      129.978  30.531  56.659  1.00 35.83      H
ATOM   1681  CA  GLN     6      130.214  30.460  55.220  1.00 33.41      H
ATOM   1682  CB  GLN     6      130.697  31.824  54.715  1.00 15.61      H
ATOM   1683  CG  GLN     6      130.089  32.252  53.377  1.00 48.11      H
ATOM   1684  CD  GLN     6      130.061  33.762  53.195  1.00 44.23      H
ATOM   1685  OE1 GLN     6      129.429  34.480  53.971  1.00 44.77      H
ATOM   1686  NE2 GLN     6      130.750  34.251  52.164  1.00 43.09      H
ATOM   1687  C   GLN     6      131.230  29.393  54.818  1.00 39.29      H
ATOM   1688  O   GLN     6      131.746  28.655  55.659  1.00 47.11      H
ATOM   1689  N   SER     7      131.492  29.318  53.514  1.00 52.14      H
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ATOM   1690  CA  SER     7      132.464  28.402  52.913  1.00 45.28      H
ATOM   1691  CB  SER     7      133.561  28.037  53.913  1.00 30.02      H
ATOM   1692  OG  SER     7      134.775  27.764  53.240  1.00 36.01      H
ATOM   1693  C   SER     7      131.963  27.125  52.255  1.00 53.29      H
ATOM   1694  O   SER     7      130.825  26.691  52.435  1.00 41.78      H
ATOM   1695  N   GLY     8      132.873  26.546  51.478  1.00 74.11      H
ATOM   1696  CA  GLY     8      132.656  25.313  50.744  1.00 86.06      H
ATOM   1697  C   GLY     8      133.987  25.088  50.046  1.00 96.74      H
ATOM   1698  O   GLY     8      135.032  25.207  50.691  1.00 99.99      H
ATOM   1699  N   PRO     9      133.999  24.757  48.739  1.00 99.99      H
ATOM   1700  CD  PRO     9      132.851  24.529  47.850  1.00 99.99      H
ATOM   1701  CA  PRO     9      135.283  24.547  48.047  1.00 95.17      H
ATOM   1702  CB  PRO     9      134.873  23.925  46.702  1.00 99.99      H
ATOM   1703  CG  PRO     9      133.404  23.557  46.852  1.00 99.98      H
ATOM   1704  C   PRO     9      136.019  25.882  47.872  1.00 83.28      H
ATOM   1705  O   PRO     9      135.387  26.937  47.793  1.00 73.84      H
ATOM   1706  N   GLU    10      137.349  25.847  47.811  1.00 73.05      H
ATOM   1707  CA  GLU    10      138.109  27.087  47.672  1.00 56.11      H
ATOM   1708  CB  GLU    10      139.003  27.279  48.898  1.00 43.53      H
ATOM   1709  CG  GLU    10      138.487  26.554  50.136  1.00 30.69      H
ATOM   1710  CD  GLU    10      137.988  27.497  51.217  1.00 42.43      H
ATOM   1711  OE1 GLU    10      138.782  28.352  51.678  1.00 16.81      H
ATOM   1712  OE2 GLU    10      136.803  27.374  51.612  1.00 22.46      H
ATOM   1713  C   GLU    10      138.939  27.223  46.393  1.00 47.28      H
ATOM   1714  O   GLU    10      139.302  28.336  46.017  1.00 48.73      H
ATOM   1715  N   LEU    11      139.239  26.106  45.730  1.00 37.54      H
ATOM   1716  CA  LEU    11      140.012  26.137  44.486  1.00 30.14      H
ATOM   1717  CB  LEU    11      141.398  25.517  44.676  1.00 20.14      H
ATOM   1718  CG  LEU    11      142.591  26.256  44.045  1.00 23.62      H
ATOM   1719  CD1 LEU    11      143.477  25.265  43.309  1.00 18.85      H
ATOM   1720  CD2 LEU    11      142.110  27.357  43.100  1.00 23.67      H
ATOM   1721  C   LEU    11      139.306  25.400  43.357  1.00 44.95      H
ATOM   1722  O   LEU    11      138.867  24.257  43.519  1.00 54.63      H
ATOM   1723  N   VAL    12      139.210  26.057  42.207  1.00 41.04      H
ATOM   1724  CA  VAL    12      138.564  25.466  41.042  1.00 44.92      H
ATOM   1725  CB  VAL    12      137.198  26.116  40.760  1.00 55.40      H
ATOM   1726  CG1 VAL    12      136.166  25.600  41.736  1.00 60.33      H
ATOM   1727  CG2 VAL    12      137.324  27.631  40.849  1.00 67.40      H
ATOM   1728  C   VAL    12      139.428  25.687  39.824  1.00 38.99      H
ATOM   1729  O   VAL    12      140.065  26.727  39.702  1.00 23.16      H
ATOM   1730  N   LYS    13      139.451  24.705  38.928  1.00 56.02      H
ATOM   1731  CA  LYS    13      140.230  24.817  37.701  1.00 61.99      H
ATOM   1732  CB  LYS    13      140.577  23.430  37.154  1.00 47.53      H
ATOM   1733  CG  LYS    13      142.054  23.066  37.259  1.00 29.92      H
ATOM   1734  CD  LYS    13      142.364  21.831  36.416  1.00 39.21      H
ATOM   1735  CE  LYS    13      143.629  22.007  35.596  1.00 40.05      H
ATOM   1736  NZ  LYS    13      144.804  21.337  36.230  1.00 30.64      H
ATOM   1737  C   LYS    13      139.365  25.595  36.706  1.00 60.22      H
ATOM   1738  O   LYS    13      138.184  25.287  36.513  1.00 48.99      H
ATOM   1739  N   PRO    14      139.951  26.619  36.066  1.00 55.96      H
ATOM   1740  CD  PRO    14      141.359  27.003  36.236  1.00 55.17      H
ATOM   1741  CA  PRO    14      139.270  27.477  35.091  1.00 63.02      H
ATOM   1742  CB  PRO    14      140.412  28.234  34.404  1.00 59.73      H
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ATOM   1743  CG  PRO   14     141.685  27.633  34.929  1.00 60.43      H
ATOM   1744  C   PRO   14     138.356  26.766  34.096  1.00 61.60      H
ATOM   1745  O   PRO   14     138.802  25.957  33.275  1.00 63.48      H
ATOM   1746  N   GLY   15     137.069  27.093  34.185  1.00 55.03      H
ATOM   1747  CA  GLY   15     136.077  26.503  33.307  1.00 55.23      H
ATOM   1748  C   GLY   15     134.961  25.815  34.071  1.00 49.69      H
ATOM   1749  O   GLY   15     133.800  25.865  33.670  1.00 45.93      H
ATOM   1750  N   THR   16     135.304  25.176  35.182  1.00 46.88      H
ATOM   1751  CA  THR   16     134.303  24.480  35.969  1.00 46.72      H
ATOM   1752  CB  THR   16     134.946  23.549  36.992  1.00 53.32      H
ATOM   1753  OG1 THR   16     135.914  24.275  37.758  1.00 63.69      H
ATOM   1754  CG2 THR   16     135.615  22.387  36.286  1.00 61.76      H
ATOM   1755  C   THR   16     133.361  25.415  36.700  1.00 42.84      H
ATOM   1756  O   THR   16     133.391  26.626  36.505  1.00 35.33      H
ATOM   1757  N   SER   17     132.535  24.829  37.559  1.00 46.34      H
ATOM   1758  CA  SER   17     131.543  25.570  38.320  1.00 44.29      H
ATOM   1759  CB  SER   17     130.190  25.458  37.621  1.00 43.09      H
ATOM   1760  OG  SER   17     130.349  25.482  36.211  1.00 37.03      H
ATOM   1761  C   SER   17     131.408  25.051  39.742  1.00 45.39      H
ATOM   1762  O   SER   17     131.124  23.872  39.956  1.00 51.18      H
ATOM   1763  N   VAL   18     131.599  25.938  40.713  1.00 43.96      H
ATOM   1764  CA  VAL   18     131.483  25.564  42.119  1.00 45.50      H
ATOM   1765  CB  VAL   18     132.723  25.989  42.932  1.00 47.04      H
ATOM   1766  CG1 VAL   18     132.979  27.469  42.756  1.00 45.76      H
ATOM   1767  CG2 VAL   18     132.513  25.665  44.400  1.00 36.17      H
ATOM   1768  C   VAL   18     130.257  26.218  42.742  1.00 46.62      H
ATOM   1769  O   VAL   18     129.772  27.240  42.258  1.00 24.82      H
ATOM   1770  N   ARG   19     129.758  25.610  43.813  1.00 53.11      H
ATOM   1771  CA  ARG   19     128.589  26.122  44.518  1.00 58.98      H
ATOM   1772  CB  ARG   19     127.414  25.157  44.354  1.00 48.17      H
ATOM   1773  CG  ARG   19     126.252  25.443  45.280  1.00 32.81      H
ATOM   1774  CD  ARG   19     125.479  24.167  45.605  1.00 61.51      H
ATOM   1775  NE  ARG   19     126.212  23.302  46.530  1.00 70.76      H
ATOM   1776  CZ  ARG   19     125.661  22.352  47.283  1.00 68.17      H
ATOM   1777  NH1 ARG   19     124.353  22.124  47.232  1.00 41.10      H
ATOM   1778  NH2 ARG   19     126.428  21.625  48.090  1.00 47.54      H
ATOM   1779  C   ARG   19     128.912  26.282  46.000  1.00 57.70      H
ATOM   1780  O   ARG   19     129.050  25.294  46.716  1.00 66.45      H
ATOM   1781  N   ILE   20     129.043  27.523  46.456  1.00 53.34      H
ATOM   1782  CA  ILE   20     129.345  27.780  47.860  1.00 52.34      H
ATOM   1783  CB  ILE   20     130.052  29.137  48.067  1.00 45.51      H
ATOM   1784  CG2 ILE   20     131.474  29.053  47.565  1.00 47.12      H
ATOM   1785  CG1 ILE   20     129.280  30.243  47.353  1.00 39.21      H
ATOM   1786  CD1 ILE   20     129.929  31.606  47.466  1.00 37.76      H
ATOM   1787  C   ILE   20     128.059  27.800  48.666  1.00 55.83      H
ATOM   1788  O   ILE   20     126.960  27.764  48.113  1.00 48.41      H
ATOM   1789  N   SER   21     128.208  27.860  49.981  1.00 65.06      H
ATOM   1790  CA  SER   21     127.058  27.892  50.863  1.00 70.97      H
ATOM   1791  CB  SER   21     126.810  26.503  51.468  1.00 72.43      H
ATOM   1792  OG  SER   21     127.562  26.314  52.654  1.00 60.74      H
ATOM   1793  C   SER   21     127.260  28.917  51.968  1.00 69.87      H
ATOM   1794  O   SER   21     128.288  29.599  52.026  1.00 70.39      H
ATOM   1795  N   CYS   22     126.262  29.013  52.839  1.00 69.21      H
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ATOM	1796	CA	CYS	22	126.263	29.940	53.963	1.00 61.84	H
ATOM	1797	C	CYS	22	124.996	29.635	54.745	1.00 52.88	H
ATOM	1798	O	CYS	22	123.890	29.845	54.249	1.00 52.20	H
ATOM	1799	CB	CYS	22	126.233	31.379	53.461	1.00 52.16	H
ATOM	1800	SG	CYS	22	125.483	32.535	54.637	1.00 54.59	H
ATOM	1801	N	GLU	23	125.154	29.147	55.968	1.00 40.82	H
ATOM	1802	CA	GLU	23	123.998	28.783	56.767	1.00 43.24	H
ATOM	1803	CB	GLU	23	124.140	27.339	57.230	1.00 55.82	H
ATOM	1804	CG	GLU	23	125.578	26.915	57.456	1.00 76.19	H
ATOM	1805	CD	GLU	23	125.807	26.370	58.853	1.00 92.47	H
ATOM	1806	OE1	GLU	23	124.810	26.025	59.525	1.00 98.93	H
ATOM	1807	OE2	GLU	23	126.982	26.286	59.278	1.00 99.99	H
ATOM	1808	C	GLU	23	123.723	29.675	57.962	1.00 47.05	H
ATOM	1809	O	GLU	23	124.610	29.940	58.777	1.00 50.01	H
ATOM	1810	N	ALA	24	122.472	30.117	58.060	1.00 39.44	H
ATOM	1811	CA	ALA	24	122.022	30.980	59.143	1.00 43.91	H
ATOM	1812	CB	ALA	24	120.770	31.729	58.709	1.00 40.39	H
ATOM	1813	C	ALA	24	121.745	30.197	60.429	1.00 49.01	H
ATOM	1814	O	ALA	24	121.532	28.983	60.398	1.00 44.02	H
ATOM	1815	N	SER	25	121.752	30.909	61.555	1.00 60.65	H
ATOM	1816	CA	SER	25	121.504	30.321	62.872	1.00 64.10	H
ATOM	1817	CB	SER	25	122.557	29.250	63.192	1.00 76.12	H
ATOM	1818	OG	SER	25	123.782	29.512	62.529	1.00 87.44	H
ATOM	1819	C	SER	25	121.514	31.391	63.966	1.00 53.28	H
ATOM	1820	O	SER	25	122.520	32.068	64.188	1.00 50.41	H
ATOM	1821	N	GLY	26	120.384	31.533	64.651	1.00 46.94	H
ATOM	1822	CA	GLY	26	120.275	32.520	65.708	1.00 30.92	H
ATOM	1823	C	GLY	26	119.044	33.377	65.502	1.00 32.69	H
ATOM	1824	O	GLY	26	118.711	34.201	66.349	1.00 19.54	H
ATOM	1825	N	TYR	27	118.372	33.167	64.370	1.00 42.28	H
ATOM	1826	CA	TYR	27	117.163	33.909	64.012	1.00 45.58	H
ATOM	1827	CB	TYR	27	117.546	35.240	63.346	1.00 51.85	H
ATOM	1828	CG	TYR	27	118.025	35.116	61.907	1.00 59.01	H
ATOM	1829	CD1	TYR	27	117.155	35.345	60.838	1.00 52.27	H
ATOM	1830	CE1	TYR	27	117.595	35.261	59.514	1.00 42.40	H
ATOM	1831	CD2	TYR	27	119.355	34.794	61.614	1.00 52.66	H
ATOM	1832	CE2	TYR	27	119.804	34.710	60.293	1.00 46.26	H
ATOM	1833	CZ	TYR	27	118.919	34.947	59.250	1.00 50.61	H
ATOM	1834	OH	TYR	27	119.363	34.893	57.947	1.00 42.85	H
ATOM	1835	C	TYR	27	116.250	33.109	63.072	1.00 48.20	H
ATOM	1836	O	TYR	27	116.553	31.963	62.712	1.00 30.85	H
ATOM	1837	N	THR	28	115.131	33.722	62.684	1.00 47.35	H
ATOM	1838	CA	THR	28	114.176	33.088	61.776	1.00 41.83	H
ATOM	1839	CB	THR	28	112.786	33.737	61.871	1.00 39.96	H
ATOM	1840	OG1	THR	28	112.270	33.577	63.197	1.00 50.93	H
ATOM	1841	CG2	THR	28	111.830	33.084	60.878	1.00 45.16	H
ATOM	1842	C	THR	28	114.653	33.204	60.328	1.00 40.89	H
ATOM	1843	O	THR	28	114.619	34.280	59.739	1.00 31.24	H
ATOM	1844	N	PHE	29	115.095	32.084	59.766	1.00 41.61	H
ATOM	1845	CA	PHE	29	115.591	32.035	58.399	1.00 41.45	H
ATOM	1846	CB	PHE	29	115.946	30.593	58.034	1.00 30.51	H
ATOM	1847	CG	PHE	29	116.611	30.449	56.696	1.00 37.17	H
ATOM	1848	CD1	PHE	29	117.833	31.065	56.439	1.00 30.37	H

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ATOM   1849  CD2 PHE    29      116.032  29.667  55.700  1.00 36.28      H
ATOM   1850  CE1 PHE    29      118.469  30.904  55.214  1.00 21.32      H
ATOM   1851  CE2 PHE    29      116.666  29.500  54.463  1.00 41.18      H
ATOM   1852  CZ  PHE    29      117.889  30.122  54.225  1.00 35.05      H
ATOM   1853  C   PHE    29      114.594  32.572  57.379  1.00 54.24      H
ATOM   1854  O   PHE    29      114.952  33.331  56.480  1.00 66.70      H
ATOM   1855  N   THR    30      113.342  32.164  57.527  1.00 55.99      H
ATOM   1856  CA  THR    30      112.276  32.557  56.615  1.00 52.36      H
ATOM   1857  CB  THR    30      111.052  31.652  56.824  1.00 53.76      H
ATOM   1858  OG1 THR    30      110.733  31.583  58.225  1.00 35.56      H
ATOM   1859  CG2 THR    30      111.357  30.244  56.304  1.00 44.72      H
ATOM   1860  C   THR    30      111.829  34.016  56.703  1.00 47.50      H
ATOM   1861  O   THR    30      110.914  34.426  55.996  1.00 53.11      H
ATOM   1862  N   SER    31      112.470  34.804  57.554  1.00 46.37      H
ATOM   1863  CA  SER    31      112.094  36.207  57.697  1.00 45.74      H
ATOM   1864  CB  SER    31      111.832  36.521  59.167  1.00 29.27      H
ATOM   1865  OG  SER    31      110.583  37.159  59.337  1.00 47.69      H
ATOM   1866  C   SER    31      113.143  37.175  57.150  1.00 47.78      H
ATOM   1867  O   SER    31      113.149  38.358  57.509  1.00 46.57      H
ATOM   1868  N   TYR    32      114.027  36.683  56.286  1.00 31.83      H
ATOM   1869  CA  TYR    32      115.068  37.530  55.720  1.00 30.55      H
ATOM   1870  CB  TYR    32      116.287  37.556  56.642  1.00 32.62      H
ATOM   1871  CG  TYR    32      116.075  38.248  57.963  1.00 37.51      H
ATOM   1872  CD1 TYR    32      115.494  37.579  59.031  1.00 33.89      H
ATOM   1873  CE1 TYR    32      115.358  38.184  60.266  1.00 35.72      H
ATOM   1874  CD2 TYR    32      116.510  39.556  58.166  1.00 39.03      H
ATOM   1875  CE2 TYR    32      116.378  40.173  59.401  1.00 40.85      H
ATOM   1876  CZ  TYR    32      115.803  39.476  60.449  1.00 43.40      H
ATOM   1877  OH  TYR    32      115.693  40.053  61.695  1.00 55.17      H
ATOM   1878  C   TYR    32      115.526  37.071  54.342  1.00 42.11      H
ATOM   1879  O   TYR    32      115.438  35.889  54.012  1.00 37.33      H
ATOM   1880  N   TYR    33      116.021  38.017  53.545  1.00 52.12      H
ATOM   1881  CA  TYR    33      116.544  37.721  52.210  1.00 50.02      H
ATOM   1882  CB  TYR    33      116.576  38.960  51.309  1.00 42.85      H
ATOM   1883  CG  TYR    33      115.263  39.601  50.944  1.00 58.80      H
ATOM   1884  CD1 TYR    33      114.637  39.313  49.730  1.00 66.77      H
ATOM   1885  CE1 TYR    33      113.466  39.968  49.345  1.00 69.61      H
ATOM   1886  CD2 TYR    33      114.683  40.558  51.771  1.00 76.77      H
ATOM   1887  CE2 TYR    33      113.513  41.220  51.398  1.00 80.20      H
ATOM   1888  CZ  TYR    33      112.909  40.921  50.185  1.00 74.03      H
ATOM   1889  OH  TYR    33      111.746  41.574  49.830  1.00 56.44      H
ATOM   1890  C   TYR    33      118.000  37.359  52.441  1.00 53.48      H
ATOM   1891  O   TYR    33      118.601  37.825  53.411  1.00 55.64      H
ATOM   1892  N   ILE    34      118.574  36.538  51.570  1.00 39.36      H
ATOM   1893  CA  ILE    34      119.991  36.237  51.705  1.00 36.92      H
ATOM   1894  CB  ILE    34      120.310  34.720  51.687  1.00 41.72      H
ATOM   1895  CG2 ILE    34      121.831  34.515  51.776  1.00 24.87      H
ATOM   1896  CG1 ILE    34      119.647  34.023  52.879  1.00 33.33      H
ATOM   1897  CD1 ILE    34      120.435  34.137  54.177  1.00 29.68      H
ATOM   1898  C   ILE    34      120.629  36.900  50.490  1.00 33.61      H
ATOM   1899  O   ILE    34      120.304  36.568  49.351  1.00 36.71      H
ATOM   1900  N   HIS    35      121.506  37.864  50.739  1.00 34.93      H
ATOM   1901  CA  HIS    35      122.185  38.573  49.666  1.00 29.41      H
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ATOM	1902	CB	HIS	35	122.300	40.062	49.990	1.00 22.47	H
ATOM	1903	CG	HIS	35	120.983	40.768	50.047	1.00 28.34	H
ATOM	1904	CD2	HIS	35	120.082	40.885	51.049	1.00 17.42	H
ATOM	1905	ND1	HIS	35	120.446	41.427	48.965	1.00 34.24	H
ATOM	1906	CE1	HIS	35	119.266	41.924	49.298	1.00 35.85	H
ATOM	1907	NE2	HIS	35	119.023	41.609	50.556	1.00 28.90	H
ATOM	1908	C	HIS	35	123.574	38.000	49.482	1.00 24.58	H
ATOM	1909	O	HIS	35	124.156	37.437	50.403	1.00 40.74	H
ATOM	1910	N	TRP	36	124.104	38.149	48.282	1.00 18.85	H
ATOM	1911	CA	TRP	36	125.430	37.664	47.984	1.00 25.49	H
ATOM	1912	CB	TRP	36	125.334	36.410	47.104	1.00 38.00	H
ATOM	1913	CG	TRP	36	125.226	35.122	47.882	1.00 42.56	H
ATOM	1914	CD2	TRP	36	126.288	34.433	48.564	1.00 28.82	H
ATOM	1915	CE2	TRP	36	125.730	33.274	49.146	1.00 18.67	H
ATOM	1916	CE3	TRP	36	127.658	34.687	48.737	1.00 34.82	H
ATOM	1917	CD1	TRP	36	124.097	34.368	48.075	1.00 40.81	H
ATOM	1918	NE1	TRP	36	124.394	33.257	48.834	1.00 30.56	H
ATOM	1919	CZ2	TRP	36	126.492	32.368	49.889	1.00 44.00	H
ATOM	1920	CZ3	TRP	36	128.418	33.786	49.479	1.00 41.71	H
ATOM	1921	CH2	TRP	36	127.832	32.641	50.045	1.00 49.64	H
ATOM	1922	C	TRP	36	126.189	38.784	47.269	1.00 22.21	H
ATOM	1923	O	TRP	36	125.658	39.410	46.352	1.00 20.33	H
ATOM	1924	N	VAL	37	127.420	39.044	47.703	1.00 21.22	H
ATOM	1925	CA	VAL	37	128.237	40.085	47.089	1.00 29.63	H
ATOM	1926	CB	VAL	37	128.157	41.414	47.887	1.00 30.69	H
ATOM	1927	CG1	VAL	37	126.874	41.453	48.701	1.00 7.82	H
ATOM	1928	CG2	VAL	37	129.366	41.569	48.780	1.00 16.02	H
ATOM	1929	C	VAL	37	129.693	39.641	46.984	1.00 33.49	H
ATOM	1930	O	VAL	37	130.223	39.017	47.900	1.00 17.14	H
ATOM	1931	N	LYS	38	130.330	39.970	45.862	1.00 43.70	H
ATOM	1932	CA	LYS	38	131.720	39.591	45.619	1.00 47.72	H
ATOM	1933	CB	LYS	38	131.849	38.932	44.233	1.00 55.60	H
ATOM	1934	CG	LYS	38	132.592	39.756	43.175	1.00 55.19	H
ATOM	1935	CD	LYS	38	133.109	38.890	42.022	1.00 50.50	H
ATOM	1936	CE	LYS	38	131.967	38.347	41.155	1.00 51.42	H
ATOM	1937	NZ	LYS	38	132.372	37.162	40.335	1.00 38.13	H
ATOM	1938	C	LYS	38	132.699	40.757	45.732	1.00 48.64	H
ATOM	1939	O	LYS	38	132.467	41.837	45.189	1.00 52.35	H
ATOM	1940	N	GLN	39	133.798	40.525	46.439	1.00 38.36	H
ATOM	1941	CA	GLN	39	134.819	41.545	46.621	1.00 30.47	H
ATOM	1942	CB	GLN	39	134.969	41.879	48.103	1.00 40.49	H
ATOM	1943	CG	GLN	39	136.078	42.863	48.409	1.00 23.44	H
ATOM	1944	CD	GLN	39	135.965	43.424	49.803	1.00 27.61	H
ATOM	1945	OE1	GLN	39	135.386	44.485	50.004	1.00 26.42	H
ATOM	1946	NE2	GLN	39	136.517	42.709	50.781	1.00 31.89	H
ATOM	1947	C	GLN	39	136.142	41.029	46.074	1.00 29.22	H
ATOM	1948	O	GLN	39	136.781	40.160	46.672	1.00 19.00	H
ATOM	1949	N	ARG	40	136.548	41.560	44.928	1.00 41.18	H
ATOM	1950	CA	ARG	40	137.794	41.139	44.310	1.00 48.75	H
ATOM	1951	CB	ARG	40	137.805	41.496	42.819	1.00 47.54	H
ATOM	1952	CG	ARG	40	137.203	40.422	41.923	1.00 39.67	H
ATOM	1953	CD	ARG	40	137.409	40.741	40.448	1.00 63.74	H
ATOM	1954	NE	ARG	40	138.762	40.415	39.997	1.00 66.96	H

ATOM	1955	CZ	ARG	40	139.215	39.178	39.816	1.00 59.13	H
ATOM	1956	NH1	ARG	40	138.426	38.137	40.046	1.00 49.49	H
ATOM	1957	NH2	ARG	40	140.459	38.982	39.400	1.00 64.52	H
ATOM	1958	C	ARG	40	138.971	41.791	45.024	1.00 49.05	H
ATOM	1959	O	ARG	40	138.955	42.989	45.312	1.00 41.67	H
ATOM	1960	N	PRO	41	140.007	40.996	45.329	1.00 49.95	H
ATOM	1961	CD	PRO	41	140.102	39.557	45.022	1.00 60.26	H
ATOM	1962	CA	PRO	41	141.200	41.485	46.013	1.00 40.75	H
ATOM	1963	CB	PRO	41	142.268	40.476	45.625	1.00 50.53	H
ATOM	1964	CG	PRO	41	141.516	39.202	45.415	1.00 62.82	H
ATOM	1965	C	PRO	41	141.558	42.888	45.576	1.00 38.02	H
ATOM	1966	O	PRO	41	141.769	43.147	44.392	1.00 47.09	H
ATOM	1967	N	GLY	42	141.614	43.794	46.542	1.00 36.72	H
ATOM	1968	CA	GLY	42	141.952	45.170	46.241	1.00 31.35	H
ATOM	1969	C	GLY	42	140.726	45.981	45.900	1.00 40.05	H
ATOM	1970	O	GLY	42	140.468	47.014	46.514	1.00 41.40	H
ATOM	1971	N	GLN	43	139.975	45.502	44.913	1.00 58.75	H
ATOM	1972	CA	GLN	43	138.752	46.163	44.468	1.00 67.06	H
ATOM	1973	CB	GLN	43	138.192	45.449	43.227	1.00 64.21	H
ATOM	1974	CG	GLN	43	137.035	46.178	42.540	1.00 71.56	H
ATOM	1975	CD	GLN	43	135.900	45.251	42.130	1.00 71.51	H
ATOM	1976	OE1	GLN	43	135.330	44.540	42.963	1.00 67.00	H
ATOM	1977	NE2	GLN	43	135.566	45.255	40.842	1.00 53.00	H
ATOM	1978	C	GLN	43	137.701	46.158	45.581	1.00 68.90	H
ATOM	1979	O	GLN	43	137.782	45.366	46.521	1.00 72.87	H
ATOM	1980	N	GLY	44	136.723	47.055	45.471	1.00 67.47	H
ATOM	1981	CA	GLY	44	135.661	47.119	46.458	1.00 54.03	H
ATOM	1982	C	GLY	44	134.746	45.927	46.268	1.00 52.55	H
ATOM	1983	O	GLY	44	135.191	44.881	45.794	1.00 65.13	H
ATOM	1984	N	LEU	45	133.474	46.062	46.623	1.00 38.94	H
ATOM	1985	CA	LEU	45	132.552	44.946	46.456	1.00 50.12	H
ATOM	1986	CB	LEU	45	132.197	44.339	47.819	1.00 44.25	H
ATOM	1987	CG	LEU	45	131.306	45.109	48.790	1.00 36.87	H
ATOM	1988	CD1	LEU	45	131.661	44.692	50.212	1.00 34.38	H
ATOM	1989	CD2	LEU	45	131.480	46.605	48.597	1.00 31.30	H
ATOM	1990	C	LEU	45	131.283	45.315	45.689	1.00 47.35	H
ATOM	1991	O	LEU	45	130.876	46.475	45.656	1.00 52.97	H
ATOM	1992	N	GLU	46	130.673	44.311	45.066	1.00 38.18	H
ATOM	1993	CA	GLU	46	129.468	44.497	44.275	1.00 32.36	H
ATOM	1994	CB	GLU	46	129.779	44.312	42.787	1.00 54.58	H
ATOM	1995	CG	GLU	46	131.106	43.601	42.502	1.00 70.14	H
ATOM	1996	CD	GLU	46	131.544	43.722	41.050	1.00 59.62	H
ATOM	1997	OE1	GLU	46	132.769	43.760	40.796	1.00 60.49	H
ATOM	1998	OE2	GLU	46	130.660	43.778	40.171	1.00 62.64	H
ATOM	1999	C	GLU	46	128.400	43.506	44.686	1.00 33.28	H
ATOM	2000	O	GLU	46	128.697	42.477	45.293	1.00 22.50	H
ATOM	2001	N	TRP	47	127.157	43.818	44.329	1.00 30.17	H
ATOM	2002	CA	TRP	47	126.010	42.982	44.661	1.00 39.51	H
ATOM	2003	CB	TRP	47	124.794	43.881	44.906	1.00 50.31	H
ATOM	2004	CG	TRP	47	123.538	43.163	45.304	1.00 46.71	H
ATOM	2005	CD2	TRP	47	122.417	42.881	44.459	1.00 46.71	H
ATOM	2006	CE2	TRP	47	121.440	42.259	45.262	1.00 40.21	H
ATOM	2007	CE3	TRP	47	122.148	43.096	43.104	1.00 44.16	H

ATOM	2008	CD1	TRP	47	123.204	42.709	46.547	1.00	44.85	H
ATOM	2009	NE1	TRP	47	121.942	42.165	46.533	1.00	44.22	H
ATOM	2010	CZ2	TRP	47	120.205	41.852	44.750	1.00	48.68	H
ATOM	2011	CZ3	TRP	47	120.924	42.689	42.597	1.00	48.92	H
ATOM	2012	CH2	TRP	47	119.969	42.073	43.420	1.00	39.77	H
ATOM	2013	C	TRP	47	125.692	41.936	43.592	1.00	45.09	H
ATOM	2014	O	TRP	47	125.359	42.260	42.449	1.00	45.19	H
ATOM	2015	N	ILE	48	125.800	40.671	43.981	1.00	45.61	H
ATOM	2016	CA	ILE	48	125.529	39.562	43.080	1.00	37.68	H
ATOM	2017	CB	ILE	48	126.185	38.266	43.601	1.00	25.87	H
ATOM	2018	CG2	ILE	48	125.479	37.039	43.036	1.00	23.09	H
ATOM	2019	CG1	ILE	48	127.657	38.249	43.202	1.00	15.27	H
ATOM	2020	CD1	ILE	48	128.449	37.133	43.847	1.00	20.12	H
ATOM	2021	C	ILE	48	124.028	39.356	42.936	1.00	35.05	H
ATOM	2022	O	ILE	48	123.461	39.591	41.870	1.00	41.96	H
ATOM	2023	N	GLY	49	123.388	38.918	44.013	1.00	32.61	H
ATOM	2024	CA	GLY	49	121.953	38.689	43.986	1.00	30.75	H
ATOM	2025	C	GLY	49	121.432	38.298	45.359	1.00	38.37	H
ATOM	2026	O	GLY	49	122.161	38.327	46.349	1.00	41.94	H
ATOM	2027	N	CYS	50	120.163	37.931	45.431	1.00	37.54	H
ATOM	2028	CA	CYS	50	119.587	37.540	46.705	1.00	38.40	H
ATOM	2029	CB	CYS	50	119.095	38.774	47.462	1.00	51.77	H
ATOM	2030	SG	CYS	50	117.500	39.407	46.877	1.00	50.59	H
ATOM	2031	C	CYS	50	118.438	36.577	46.500	1.00	42.42	H
ATOM	2032	O	CYS	50	117.835	36.535	45.431	1.00	50.09	H
ATOM	2033	N	ILE	51	118.146	35.804	47.537	1.00	42.92	H
ATOM	2034	CA	ILE	51	117.059	34.837	47.502	1.00	37.44	H
ATOM	2035	CB	ILE	51	117.596	33.380	47.377	1.00	28.69	H
ATOM	2036	CG2	ILE	51	118.648	33.111	48.440	1.00	29.15	H
ATOM	2037	CG1	ILE	51	116.448	32.382	47.521	1.00	22.13	H
ATOM	2038	CD1	ILE	51	115.840	31.963	46.201	1.00	43.28	H
ATOM	2039	C	ILE	51	116.277	34.989	48.800	1.00	42.00	H
ATOM	2040	O	ILE	51	116.861	35.219	49.868	1.00	34.19	H
ATOM	2041	N	TYR	52	114.957	34.886	48.706	1.00	38.73	H
ATOM	2042	CA	TYR	52	114.124	35.013	49.888	1.00	34.95	H
ATOM	2043	CB	TYR	52	112.954	35.960	49.643	1.00	26.98	H
ATOM	2044	CG	TYR	52	112.041	36.049	50.840	1.00	28.39	H
ATOM	2045	CD1	TYR	52	112.571	36.155	52.132	1.00	31.39	H
ATOM	2046	CE1	TYR	52	111.752	36.193	53.244	1.00	43.44	H
ATOM	2047	CD2	TYR	52	110.660	35.986	50.695	1.00	19.91	H
ATOM	2048	CE2	TYR	52	109.821	36.022	51.800	1.00	43.98	H
ATOM	2049	CZ	TYR	52	110.376	36.124	53.075	1.00	56.97	H
ATOM	2050	OH	TYR	52	109.556	36.153	54.178	1.00	67.54	H
ATOM	2051	C	TYR	52	113.578	33.674	50.350	1.00	39.53	H
ATOM	2052	O	TYR	52	112.611	33.161	49.791	1.00	45.44	H
ATOM	2053	N	PRO	53	114.191	33.092	51.386	1.00	46.32	H
ATOM	2054	CD	PRO	53	115.347	33.610	52.137	1.00	58.13	H
ATOM	2055	CA	PRO	53	113.728	31.803	51.900	1.00	36.81	H
ATOM	2056	CB	PRO	53	114.599	31.566	53.126	1.00	38.59	H
ATOM	2057	CG	PRO	53	115.817	32.404	52.894	1.00	59.97	H
ATOM	2058	C	PRO	53	112.279	31.971	52.275	1.00	35.25	H
ATOM	2059	O	PRO	53	111.926	32.927	52.959	1.00	37.50	H
ATOM	2060	N	GLY	54	111.441	31.055	51.815	1.00	43.54	H

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ATOM   2061  CA  GLY   54     110.027  31.142  52.120  1.00 53.47      H
ATOM   2062  C   GLY   54     109.200  31.023  50.860  1.00 58.70      H
ATOM   2063  O   GLY   54     108.726  29.936  50.530  1.00 74.82      H
ATOM   2064  N   ASN   55     109.021  32.132  50.150  1.00 48.62      H
ATOM   2065  CA  ASN   55     108.248  32.116  48.917  1.00 45.89      H
ATOM   2066  CB  ASN   55     107.602  33.482  48.675  1.00 46.66      H
ATOM   2067  CG  ASN   55     108.344  34.312  47.658  1.00 46.59      H
ATOM   2068  OD1 ASN   55     109.183  35.138  48.009  1.00 50.93      H
ATOM   2069  ND2 ASN   55     108.027  34.107  46.384  1.00 65.32      H
ATOM   2070  C   ASN   55     109.177  31.740  47.777  1.00 59.93      H
ATOM   2071  O   ASN   55     108.738  31.536  46.645  1.00 70.19      H
ATOM   2072  N   VAL   56     110.466  31.644  48.110  1.00 68.48      H
ATOM   2073  CA  VAL   56     111.541  31.269  47.182  1.00 68.32      H
ATOM   2074  CB  VAL   56     111.181  29.960  46.416  1.00 73.69      H
ATOM   2075  CG1 VAL   56     110.739  30.271  44.989  1.00 75.39      H
ATOM   2076  CG2 VAL   56     112.377  29.021  46.415  1.00 57.36      H
ATOM   2077  C   VAL   56     111.958  32.352  46.182  1.00 64.26      H
ATOM   2078  O   VAL   56     112.859  32.142  45.366  1.00 50.69      H
ATOM   2079  N   ASN   57     111.307  33.511  46.258  1.00 70.60      H
ATOM   2080  CA  ASN   57     111.610  34.622  45.366  1.00 62.78      H
ATOM   2081  CB  ASN   57     110.996  35.913  45.898  1.00 76.22      H
ATOM   2082  CG  ASN   57     109.868  36.422  45.032  1.00 82.20      H
ATOM   2083  OD1 ASN   57     109.018  37.191  45.486  1.00 72.33      H
ATOM   2084  ND2 ASN   57     109.849  35.989  43.772  1.00 72.74      H
ATOM   2085  C   ASN   57     113.110  34.795  45.242  1.00 63.32      H
ATOM   2086  O   ASN   57     113.857  34.515  46.181  1.00 68.16      H
ATOM   2087  N   THR   58     113.553  35.267  44.084  1.00 54.53      H
ATOM   2088  CA  THR   58     114.974  35.465  43.859  1.00 52.32      H
ATOM   2089  CB  THR   58     115.597  34.191  43.279  1.00 48.24      H
ATOM   2090  OG1 THR   58     116.806  34.523  42.594  1.00 45.77      H
ATOM   2091  CG2 THR   58     114.628  33.516  42.314  1.00 53.99      H
ATOM   2092  C   THR   58     115.243  36.641  42.921  1.00 52.31      H
ATOM   2093  O   THR   58     114.436  36.935  42.039  1.00 59.83      H
ATOM   2094  N   ASN   59     116.375  37.313  43.117  1.00 40.59      H
ATOM   2095  CA  ASN   59     116.730  38.462  42.290  1.00 38.18      H
ATOM   2096  CB  ASN   59     116.330  39.758  42.998  1.00 53.76      H
ATOM   2097  CG  ASN   59     114.928  40.217  42.632  1.00 53.44      H
ATOM   2098  OD1 ASN   59     114.712  40.809  41.572  1.00 58.59      H
ATOM   2099  ND2 ASN   59     113.970  39.951  43.512  1.00 44.63      H
ATOM   2100  C   ASN   59     118.217  38.505  41.970  1.00 30.27      H
ATOM   2101  O   ASN   59     119.049  38.423  42.873  1.00 35.55      H
ATOM   2102  N   TYR   60     118.544  38.661  40.687  1.00 19.72      H
ATOM   2103  CA  TYR   60     119.935  38.710  40.243  1.00 29.52      H
ATOM   2104  CB  TYR   60     120.213  37.596  39.227  1.00 27.47      H
ATOM   2105  CG  TYR   60     119.809  36.215  39.675  1.00 25.29      H
ATOM   2106  CD1 TYR   60     120.762  35.233  39.929  1.00 18.79      H
ATOM   2107  CE1 TYR   60     120.382  33.951  40.325  1.00 40.31      H
ATOM   2108  CD2 TYR   60     118.468  35.883  39.825  1.00 40.64      H
ATOM   2109  CE2 TYR   60     118.077  34.611  40.217  1.00 47.25      H
ATOM   2110  CZ  TYR   60     119.033  33.647  40.469  1.00 51.22      H
ATOM   2111  OH  TYR   60     118.621  32.391  40.883  1.00 56.18      H
ATOM   2112  C   TYR   60     120.367  40.034  39.618  1.00 25.63      H
ATOM   2113  O   TYR   60     119.574  40.746  39.008  1.00 17.78      H
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ATOM	2114	N	ASN	61	121.645	40.354	39.789	1.00 31.77	H
ATOM	2115	CA	ASN	61	122.224	41.551	39.213	1.00 30.42	H
ATOM	2116	CB	ASN	61	123.542	41.891	39.907	1.00 26.96	H
ATOM	2117	CG	ASN	61	124.176	43.155	39.367	1.00 28.98	H
ATOM	2118	OD1	ASN	61	124.721	43.964	40.120	1.00 39.03	H
ATOM	2119	ND2	ASN	61	124.105	43.335	38.052	1.00 39.88	H
ATOM	2120	C	ASN	61	122.480	41.102	37.787	1.00 42.86	H
ATOM	2121	O	ASN	61	123.062	40.041	37.571	1.00 56.00	H
ATOM	2122	N	GLU	62	122.045	41.889	36.812	1.00 46.51	H
ATOM	2123	CA	GLU	62	122.224	41.498	35.424	1.00 52.07	H
ATOM	2124	CB	GLU	62	121.511	42.490	34.504	1.00 57.39	H
ATOM	2125	CG	GLU	62	120.513	41.839	33.531	1.00 76.62	H
ATOM	2126	CD	GLU	62	119.280	41.242	34.214	1.00 81.14	H
ATOM	2127	OE1	GLU	62	119.442	40.484	35.197	1.00 79.43	H
ATOM	2128	OE2	GLU	62	118.148	41.528	33.759	1.00 70.90	H
ATOM	2129	C	GLU	62	123.678	41.327	35.000	1.00 53.65	H
ATOM	2130	O	GLU	62	123.953	40.991	33.847	1.00 75.05	H
ATOM	2131	N	LYS	63	124.610	41.543	35.922	1.00 36.05	H
ATOM	2132	CA	LYS	63	126.025	41.379	35.604	1.00 35.02	H
ATOM	2133	CB	LYS	63	126.862	42.421	36.353	1.00 26.34	H
ATOM	2134	CG	LYS	63	127.215	43.653	35.532	1.00 49.15	H
ATOM	2135	CD	LYS	63	126.773	44.948	36.217	1.00 45.62	H
ATOM	2136	CE	LYS	63	127.938	45.619	36.920	1.00 40.94	H
ATOM	2137	NZ	LYS	63	128.652	44.625	37.772	1.00 39.59	H
ATOM	2138	C	LYS	63	126.506	39.969	35.961	1.00 40.58	H
ATOM	2139	O	LYS	63	127.618	39.576	35.611	1.00 45.93	H
ATOM	2140	N	PHE	64	125.657	39.214	36.658	1.00 47.98	H
ATOM	2141	CA	PHE	64	125.975	37.849	37.073	1.00 42.86	H
ATOM	2142	CB	PHE	64	126.263	37.789	38.579	1.00 42.85	H
ATOM	2143	CG	PHE	64	127.177	38.872	39.068	1.00 44.03	H
ATOM	2144	CD1	PHE	64	128.538	38.831	38.791	1.00 50.59	H
ATOM	2145	CD2	PHE	64	126.680	39.929	39.817	1.00 38.08	H
ATOM	2146	CE1	PHE	64	129.388	39.830	39.255	1.00 45.27	H
ATOM	2147	CE2	PHE	64	127.524	40.933	40.284	1.00 43.09	H
ATOM	2148	CZ	PHE	64	128.877	40.883	40.004	1.00 31.11	H
ATOM	2149	C	PHE	64	124.823	36.908	36.768	1.00 43.11	H
ATOM	2150	O	PHE	64	124.560	35.988	37.535	1.00 47.33	H
ATOM	2151	N	LYS	65	124.148	37.128	35.644	1.00 55.21	H
ATOM	2152	CA	LYS	65	123.005	36.302	35.259	1.00 59.07	H
ATOM	2153	CB	LYS	65	122.383	36.806	33.949	1.00 45.97	H
ATOM	2154	CG	LYS	65	123.146	37.914	33.251	1.00 49.55	H
ATOM	2155	CD	LYS	65	124.165	37.363	32.270	1.00 46.70	H
ATOM	2156	CE	LYS	65	125.116	38.461	31.811	1.00 50.30	H
ATOM	2157	NZ	LYS	65	125.548	38.271	30.398	1.00 58.93	H
ATOM	2158	C	LYS	65	123.279	34.802	35.118	1.00 67.16	H
ATOM	2159	O	LYS	65	122.598	33.984	35.741	1.00 70.12	H
ATOM	2160	N	ASP	66	124.267	34.440	34.304	1.00 69.41	H
ATOM	2161	CA	ASP	66	124.579	33.031	34.073	1.00 66.83	H
ATOM	2162	CB	ASP	66	125.508	32.898	32.872	1.00 66.07	H
ATOM	2163	CG	ASP	66	124.747	32.712	31.580	1.00 66.45	H
ATOM	2164	OD1	ASP	66	124.869	31.628	30.973	1.00 66.35	H
ATOM	2165	OD2	ASP	66	124.023	33.649	31.177	1.00 50.12	H
ATOM	2166	C	ASP	66	125.168	32.265	35.251	1.00 70.25	H

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ATOM   2167  O   ASP   66      124.514  31.365  35.792  1.00 72.29      H
ATOM   2168  N   LYS   67      126.399  32.605  35.637  1.00 62.38      H
ATOM   2169  CA  LYS   67      127.071  31.934  36.750  1.00 49.02      H
ATOM   2170  CB  LYS   67      128.374  32.653  37.115  1.00 25.39      H
ATOM   2171  CG  LYS   67      128.541  34.034  36.489  1.00 48.63      H
ATOM   2172  CD  LYS   67      129.958  34.579  36.675  1.00 21.16      H
ATOM   2173  CE  LYS   67      130.912  34.018  35.624  1.00 43.17      H
ATOM   2174  NZ  LYS   67      132.251  33.618  36.179  1.00 34.20      H
ATOM   2175  C   LYS   67      126.178  31.887  37.977  1.00 59.48      H
ATOM   2176  O   LYS   67      125.721  30.816  38.390  1.00 51.12      H
ATOM   2177  N   ALA   68      125.929  33.066  38.545  1.00 67.14      H
ATOM   2178  CA  ALA   68      125.104  33.220  39.741  1.00 54.74      H
ATOM   2179  CB  ALA   68      125.017  34.688  40.108  1.00 54.84      H
ATOM   2180  C   ALA   68      123.701  32.631  39.631  1.00 49.40      H
ATOM   2181  O   ALA   68      122.851  33.136  38.896  1.00 58.08      H
ATOM   2182  N   THR   69      123.473  31.564  40.387  1.00 32.05      H
ATOM   2183  CA  THR   69      122.192  30.874  40.429  1.00 37.56      H
ATOM   2184  CB  THR   69      122.284  29.541  39.655  1.00 35.94      H
ATOM   2185  OG1 THR   69      122.392  29.821  38.253  1.00 40.10      H
ATOM   2186  CG2 THR   69      121.065  28.676  39.908  1.00 26.92      H
ATOM   2187  C   THR   69      121.915  30.626  41.914  1.00 43.54      H
ATOM   2188  O   THR   69      122.595  29.823  42.550  1.00 40.52      H
ATOM   2189  N   LEU   70      120.924  31.319  42.469  1.00 45.97      H
ATOM   2190  CA  LEU   70      120.622  31.189  43.893  1.00 46.62      H
ATOM   2191  CB  LEU   70      120.166  32.536  44.445  1.00 47.28      H
ATOM   2192  CG  LEU   70      121.305  33.331  45.091  1.00 55.81      H
ATOM   2193  CD1 LEU   70      121.133  34.805  44.767  1.00 43.73      H
ATOM   2194  CD2 LEU   70      121.322  33.094  46.611  1.00 43.94      H
ATOM   2195  C   LEU   70      119.636  30.107  44.312  1.00 43.94      H
ATOM   2196  O   LEU   70      118.496  30.070  43.849  1.00 42.32      H
ATOM   2197  N   ILE   71      120.103  29.247  45.218  1.00 44.21      H
ATOM   2198  CA  ILE   71      119.333  28.125  45.755  1.00 49.89      H
ATOM   2199  CB  ILE   71      120.026  26.770  45.430  1.00 51.60      H
ATOM   2200  CG2 ILE   71      119.259  25.616  46.072  1.00 29.06      H
ATOM   2201  CG1 ILE   71      120.107  26.573  43.911  1.00 54.43      H
ATOM   2202  CD1 ILE   71      121.184  27.402  43.222  1.00 43.28      H
ATOM   2203  C   ILE   71      119.203  28.255  47.278  1.00 52.79      H
ATOM   2204  O   ILE   71      120.103  28.779  47.939  1.00 62.18      H
ATOM   2205  N   VAL   72      118.093  27.768  47.830  1.00 50.92      H
ATOM   2206  CA  VAL   72      117.837  27.843  49.269  1.00 52.77      H
ATOM   2207  CB  VAL   72      116.551  28.677  49.549  1.00 47.96      H
ATOM   2208  CG1 VAL   72      115.313  27.828  49.317  1.00 44.08      H
ATOM   2209  CG2 VAL   72      116.569  29.224  50.967  1.00 43.63      H
ATOM   2210  C   VAL   72      117.687  26.437  49.861  1.00 56.26      H
ATOM   2211  O   VAL   72      117.627  25.457  49.123  1.00 65.48      H
ATOM   2212  N   ASP   73      117.638  26.344  51.191  1.00 56.09      H
ATOM   2213  CA  ASP   73      117.492  25.064  51.891  1.00 50.35      H
ATOM   2214  CB  ASP   73      118.848  24.365  51.995  1.00 53.65      H
ATOM   2215  CG  ASP   73      118.721  22.907  52.384  1.00 57.99      H
ATOM   2216  OD1 ASP   73      118.119  22.616  53.443  1.00 57.92      H
ATOM   2217  OD2 ASP   73      119.229  22.055  51.625  1.00 61.79      H
ATOM   2218  C   ASP   73      116.932  25.313  53.290  1.00 50.51      H
ATOM   2219  O   ASP   73      117.664  25.288  54.280  1.00 43.10      H
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ATOM	2220	N	THR	74	115.624	25.535	53.352	1.00	56.54	H
ATOM	2221	CA	THR	74	114.913	25.836	54.593	1.00	66.24	H
ATOM	2222	CB	THR	74	113.421	26.020	54.296	1.00	71.27	H
ATOM	2223	OG1	THR	74	113.183	25.793	52.901	1.00	71.81	H
ATOM	2224	CG2	THR	74	112.979	27.430	54.659	1.00	81.34	H
ATOM	2225	C	THR	74	115.054	24.876	55.785	1.00	71.66	H
ATOM	2226	O	THR	74	114.662	25.220	56.902	1.00	67.59	H
ATOM	2227	N	SER	75	115.610	23.689	55.559	1.00	75.40	H
ATOM	2228	CA	SER	75	115.775	22.712	56.634	1.00	69.25	H
ATOM	2229	CB	SER	75	115.833	21.292	56.063	1.00	76.48	H
ATOM	2230	OG	SER	75	116.615	20.445	56.891	1.00	75.33	H
ATOM	2231	C	SER	75	117.024	22.961	57.474	1.00	60.40	H
ATOM	2232	O	SER	75	116.949	23.066	58.703	1.00	51.38	H
ATOM	2233	N	SER	76	118.171	23.040	56.807	1.00	45.77	H
ATOM	2234	CA	SER	76	119.435	23.282	57.498	1.00	44.97	H
ATOM	2235	CB	SER	76	120.585	22.601	56.749	1.00	51.28	H
ATOM	2236	OG	SER	76	120.106	21.807	55.676	1.00	43.07	H
ATOM	2237	C	SER	76	119.691	24.781	57.589	1.00	34.83	H
ATOM	2238	O	SER	76	120.755	25.221	58.008	1.00	28.11	H
ATOM	2239	N	ASN	77	118.697	25.563	57.194	1.00	46.96	H
ATOM	2240	CA	ASN	77	118.826	27.009	57.222	1.00	38.99	H
ATOM	2241	CB	ASN	77	118.847	27.513	58.665	1.00	41.25	H
ATOM	2242	CG	ASN	77	117.459	27.785	59.206	1.00	39.52	H
ATOM	2243	OD1	ASN	77	116.470	27.731	58.468	1.00	40.29	H
ATOM	2244	ND2	ASN	77	117.377	28.082	60.496	1.00	23.39	H
ATOM	2245	C	ASN	77	120.111	27.395	56.515	1.00	34.49	H
ATOM	2246	O	ASN	77	120.971	28.067	57.077	1.00	45.69	H
ATOM	2247	N	THR	78	120.240	26.944	55.275	1.00	39.07	H
ATOM	2248	CA	THR	78	121.417	27.244	54.481	1.00	43.99	H
ATOM	2249	CB	THR	78	122.340	26.001	54.336	1.00	47.54	H
ATOM	2250	OG1	THR	78	121.955	25.239	53.189	1.00	23.72	H
ATOM	2251	CG2	THR	78	122.244	25.122	55.568	1.00	19.39	H
ATOM	2252	C	THR	78	121.030	27.761	53.100	1.00	35.58	H
ATOM	2253	O	THR	78	120.107	27.255	52.465	1.00	41.21	H
ATOM	2254	N	ALA	79	121.738	28.791	52.658	1.00	32.09	H
ATOM	2255	CA	ALA	79	121.498	29.399	51.361	1.00	45.71	H
ATOM	2256	CB	ALA	79	121.265	30.903	51.520	1.00	20.04	H
ATOM	2257	C	ALA	79	122.734	29.148	50.509	1.00	54.97	H
ATOM	2258	O	ALA	79	123.854	29.447	50.927	1.00	71.91	H
ATOM	2259	N	TYR	80	122.550	28.589	49.321	1.00	37.02	H
ATOM	2260	CA	TYR	80	123.697	28.329	48.480	1.00	32.51	H
ATOM	2261	CB	TYR	80	123.635	26.921	47.920	1.00	27.41	H
ATOM	2262	CG	TYR	80	123.465	25.846	48.950	1.00	28.36	H
ATOM	2263	CD1	TYR	80	124.539	25.049	49.332	1.00	30.12	H
ATOM	2264	CE1	TYR	80	124.371	24.000	50.232	1.00	47.45	H
ATOM	2265	CD2	TYR	80	122.212	25.575	49.495	1.00	29.76	H
ATOM	2266	CE2	TYR	80	122.028	24.529	50.394	1.00	40.26	H
ATOM	2267	CZ	TYR	80	123.111	23.742	50.759	1.00	45.55	H
ATOM	2268	OH	TYR	80	122.933	22.695	51.643	1.00	45.67	H
ATOM	2269	C	TYR	80	123.819	29.307	47.327	1.00	47.49	H
ATOM	2270	O	TYR	80	122.870	30.010	46.974	1.00	54.32	H
ATOM	2271	N	MET	81	125.012	29.328	46.744	1.00	58.24	H
ATOM	2272	CA	MET	81	125.340	30.175	45.609	1.00	51.28	H

ATOM	2273	CB	MET	81	126.117	31.401	46.073	1.00	47.13	H
ATOM	2274	CG	MET	81	127.250	31.794	45.151	1.00	49.47	H
ATOM	2275	SD	MET	81	126.890	33.310	44.268	1.00	52.80	H
ATOM	2276	CE	MET	81	127.508	34.508	45.421	1.00	52.92	H
ATOM	2277	C	MET	81	126.220	29.327	44.699	1.00	51.47	H
ATOM	2278	O	MET	81	127.342	28.976	45.065	1.00	48.72	H
ATOM	2279	N	GLN	82	125.707	28.981	43.525	1.00	46.87	H
ATOM	2280	CA	GLN	82	126.476	28.175	42.595	1.00	45.38	H
ATOM	2281	CB	GLN	82	125.589	27.113	41.943	1.00	71.53	H
ATOM	2282	CG	GLN	82	125.978	26.739	40.511	1.00	89.74	H
ATOM	2283	CD	GLN	82	127.278	25.955	40.433	1.00	96.73	H
ATOM	2284	OE1	GLN	82	127.925	25.699	41.448	1.00	98.73	H
ATOM	2285	NE2	GLN	82	127.665	25.572	39.220	1.00	94.58	H
ATOM	2286	C	GLN	82	127.075	29.065	41.530	1.00	44.59	H
ATOM	2287	O	GLN	82	126.366	29.787	40.833	1.00	42.20	H
ATOM	2288	N	LEU	83	128.394	29.014	41.422	1.00	49.17	H
ATOM	2289	CA	LEU	83	129.114	29.797	40.434	1.00	46.27	H
ATOM	2290	CB	LEU	83	130.369	30.398	41.067	1.00	32.33	H
ATOM	2291	CG	LEU	83	130.033	31.416	42.160	1.00	31.17	H
ATOM	2292	CD1	LEU	83	131.119	31.455	43.252	1.00	6.90	H
ATOM	2293	CD2	LEU	83	129.865	32.766	41.496	1.00	18.19	H
ATOM	2294	C	LEU	83	129.471	28.845	39.298	1.00	45.11	H
ATOM	2295	O	LEU	83	130.201	27.870	39.496	1.00	36.84	H
ATOM	2296	N	SER	84	128.925	29.118	38.117	1.00	44.08	H
ATOM	2297	CA	SER	84	129.160	28.280	36.948	1.00	46.97	H
ATOM	2298	CB	SER	84	127.829	27.869	36.323	1.00	54.37	H
ATOM	2299	OG	SER	84	127.604	28.576	35.118	1.00	64.19	H
ATOM	2300	C	SER	84	130.037	28.942	35.896	1.00	49.55	H
ATOM	2301	O	SER	84	129.905	30.137	35.617	1.00	47.92	H
ATOM	2302	N	ARG	85	130.925	28.146	35.306	1.00	48.23	H
ATOM	2303	CA	ARG	85	131.842	28.637	34.294	1.00	41.86	H
ATOM	2304	CB	ARG	85	131.057	29.141	33.082	1.00	46.21	H
ATOM	2305	CG	ARG	85	130.474	28.012	32.236	1.00	41.59	H
ATOM	2306	CD	ARG	85	129.125	28.393	31.630	1.00	68.47	H
ATOM	2307	NE	ARG	85	129.174	28.406	30.170	1.00	68.50	H
ATOM	2308	CZ	ARG	85	128.142	28.126	29.381	1.00	60.66	H
ATOM	2309	NH1	ARG	85	126.962	27.808	29.906	1.00	56.39	H
ATOM	2310	NH2	ARG	85	128.293	28.166	28.065	1.00	55.47	H
ATOM	2311	C	ARG	85	132.670	29.752	34.912	1.00	40.27	H
ATOM	2312	O	ARG	85	132.430	30.939	34.669	1.00	37.17	H
ATOM	2313	N	MET	86	133.645	29.350	35.722	1.00	35.41	H
ATOM	2314	CA	MET	86	134.518	30.288	36.412	1.00	32.72	H
ATOM	2315	CB	MET	86	134.974	29.684	37.733	1.00	38.34	H
ATOM	2316	CG	MET	86	134.091	28.551	38.215	1.00	45.32	H
ATOM	2317	SD	MET	86	133.310	28.856	39.804	1.00	63.97	H
ATOM	2318	CE	MET	86	133.680	30.599	40.068	1.00	45.50	H
ATOM	2319	C	MET	86	135.733	30.691	35.592	1.00	33.88	H
ATOM	2320	O	MET	86	136.097	30.018	34.627	1.00	28.01	H
ATOM	2321	N	THR	87	136.357	31.794	35.996	1.00	37.82	H
ATOM	2322	CA	THR	87	137.525	32.330	35.310	1.00	39.63	H
ATOM	2323	CB	THR	87	137.081	33.070	34.035	1.00	31.11	H
ATOM	2324	OG1	THR	87	136.455	32.132	33.153	1.00	44.08	H
ATOM	2325	CG2	THR	87	138.263	33.706	33.324	1.00	41.18	H

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ATOM   2326  C   THR  87     138.299  33.282  36.232  1.00 49.08      H
ATOM   2327  O   THR  87     137.797  33.684  37.278  1.00 56.80      H
ATOM   2328  N   SER  88     139.523  33.634  35.845  1.00 59.16      H
ATOM   2329  CA  SER  88     140.362  34.539  36.633  1.00 63.45      H
ATOM   2330  CB  SER  88     141.693  34.780  35.911  1.00 64.98      H
ATOM   2331  OG  SER  88     142.614  33.729  36.165  1.00 44.05      H
ATOM   2332  C   SER  88     139.672  35.878  36.897  1.00 61.47      H
ATOM   2333  O   SER  88     140.291  36.838  37.356  1.00 63.13      H
ATOM   2334  N   GLU  89     138.384  35.928  36.586  1.00 61.96      H
ATOM   2335  CA  GLU  89     137.567  37.114  36.791  1.00 60.40      H
ATOM   2336  CB  GLU  89     136.888  37.517  35.483  1.00 58.39      H
ATOM   2337  CG  GLU  89     136.045  36.410  34.861  1.00 65.30      H
ATOM   2338  CD  GLU  89     134.607  36.832  34.614  1.00 74.02      H
ATOM   2339  OE1 GLU  89     134.227  36.969  33.430  1.00 59.34      H
ATOM   2340  OE2 GLU  89     133.858  37.028  35.604  1.00 71.55      H
ATOM   2341  C   GLU  89     136.518  36.725  37.822  1.00 58.77      H
ATOM   2342  O   GLU  89     135.492  37.388  37.971  1.00 54.85      H
ATOM   2343  N   ASP  90     136.788  35.624  38.514  1.00 59.98      H
ATOM   2344  CA  ASP  90     135.898  35.102  39.544  1.00 62.69      H
ATOM   2345  CB  ASP  90     135.475  33.664  39.211  1.00 63.78      H
ATOM   2346  CG  ASP  90     134.268  33.601  38.293  1.00 63.07      H
ATOM   2347  OD1 ASP  90     133.728  32.488  38.109  1.00 51.98      H
ATOM   2348  OD2 ASP  90     133.864  34.653  37.757  1.00 64.25      H
ATOM   2349  C   ASP  90     136.653  35.105  40.867  1.00 58.67      H
ATOM   2350  O   ASP  90     136.052  35.098  41.939  1.00 60.42      H
ATOM   2351  N   SER  91     137.979  35.102  40.783  1.00 57.82      H
ATOM   2352  CA  SER  91     138.806  35.113  41.978  1.00 51.69      H
ATOM   2353  CB  SER  91     140.285  35.096  41.597  1.00 44.52      H
ATOM   2354  OG  SER  91     140.598  33.935  40.846  1.00 46.65      H
ATOM   2355  C   SER  91     138.487  36.362  42.787  1.00 53.31      H
ATOM   2356  O   SER  91     138.881  37.471  42.427  1.00 45.71      H
ATOM   2357  N   ALA  92     137.755  36.167  43.877  1.00 53.93      H
ATOM   2358  CA  ALA  92     137.356  37.257  44.755  1.00 50.72      H
ATOM   2359  CB  ALA  92     136.133  37.967  44.177  1.00 48.61      H
ATOM   2360  C   ALA  92     137.045  36.691  46.143  1.00 46.86      H
ATOM   2361  O   ALA  92     137.638  35.690  46.545  1.00 49.03      H
ATOM   2362  N   VAL  93     136.116  37.313  46.868  1.00 46.02      H
ATOM   2363  CA  VAL  93     135.775  36.842  48.207  1.00 44.17      H
ATOM   2364  CB  VAL  93     136.116  37.909  49.272  1.00 39.83      H
ATOM   2365  CG1 VAL  93     136.006  37.299  50.663  1.00 31.85      H
ATOM   2366  CG2 VAL  93     137.523  38.450  49.049  1.00 37.20      H
ATOM   2367  C   VAL  93     134.330  36.371  48.439  1.00 45.91      H
ATOM   2368  O   VAL  93     134.092  35.525  49.301  1.00 48.37      H
ATOM   2369  N   TYR  94     133.373  36.916  47.691  1.00 38.60      H
ATOM   2370  CA  TYR  94     131.963  36.524  47.825  1.00 49.33      H
ATOM   2371  CB  TYR  94     131.706  35.189  47.125  1.00 40.10      H
ATOM   2372  CG  TYR  94     132.160  35.137  45.692  1.00 31.43      H
ATOM   2373  CD1 TYR  94     131.372  35.660  44.675  1.00 29.40      H
ATOM   2374  CE1 TYR  94     131.758  35.556  43.344  1.00 41.76      H
ATOM   2375  CD2 TYR  94     133.355  34.512  45.346  1.00 33.02      H
ATOM   2376  CE2 TYR  94     133.750  34.402  44.025  1.00 31.73      H
ATOM   2377  CZ  TYR  94     132.949  34.922  43.028  1.00 46.94      H
ATOM   2378  OH  TYR  94     133.336  34.796  41.711  1.00 62.64      H
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ATOM	2379	C	TYR	94	131.450	36.407	49.267	1.00	50.08	H
ATOM	2380	O	TYR	94	131.708	35.413	49.953	1.00	34.70	H
ATOM	2381	N	PHE	95	130.688	37.408	49.703	1.00	50.03	H
ATOM	2382	CA	PHE	95	130.140	37.431	51.051	1.00	34.71	H
ATOM	2383	CB	PHE	95	130.292	38.814	51.671	1.00	32.84	H
ATOM	2384	CG	PHE	95	131.646	39.077	52.243	1.00	19.95	H
ATOM	2385	CD1	PHE	95	131.966	38.638	53.516	1.00	6.35	H
ATOM	2386	CD2	PHE	95	132.600	39.780	51.508	1.00	14.02	H
ATOM	2387	CE1	PHE	95	133.219	38.892	54.057	1.00	29.11	H
ATOM	2388	CE2	PHE	95	133.849	40.037	52.041	1.00	21.81	H
ATOM	2389	CZ	PHE	95	134.162	39.592	53.321	1.00	20.98	H
ATOM	2390	C	PHE	95	128.678	37.082	51.077	1.00	37.58	H
ATOM	2391	O	PHE	95	127.941	37.378	50.146	1.00	40.29	H
ATOM	2392	N	CYS	96	128.272	36.455	52.168	1.00	47.35	H
ATOM	2393	CA	CYS	96	126.888	36.080	52.375	1.00	48.56	H
ATOM	2394	C	CYS	96	126.368	37.062	53.415	1.00	47.93	H
ATOM	2395	O	CYS	96	127.035	37.326	54.420	1.00	49.37	H
ATOM	2396	CB	CYS	96	126.796	34.652	52.911	1.00	45.82	H
ATOM	2397	SG	CYS	96	125.140	34.190	53.511	1.00	75.54	H
ATOM	2398	N	THR	97	125.188	37.614	53.168	1.00	37.05	H
ATOM	2399	CA	THR	97	124.595	38.575	54.086	1.00	35.84	H
ATOM	2400	CB	THR	97	125.127	40.008	53.807	1.00	33.55	H
ATOM	2401	OG1	THR	97	124.832	40.851	54.922	1.00	24.79	H
ATOM	2402	CG2	THR	97	124.517	40.584	52.542	1.00	23.01	H
ATOM	2403	C	THR	97	123.085	38.518	53.931	1.00	34.60	H
ATOM	2404	O	THR	97	122.584	37.860	53.026	1.00	34.26	H
ATOM	2405	N	ARG	98	122.356	39.192	54.814	1.00	46.98	H
ATOM	2406	CA	ARG	98	120.896	39.158	54.752	1.00	49.01	H
ATOM	2407	CB	ARG	98	120.352	38.157	55.795	1.00	38.44	H
ATOM	2408	CG	ARG	98	119.596	38.781	56.963	1.00	40.81	H
ATOM	2409	CD	ARG	98	120.319	38.594	58.296	1.00	27.38	H
ATOM	2410	NE	ARG	98	119.849	39.546	59.307	1.00	53.08	H
ATOM	2411	CZ	ARG	98	119.540	39.230	60.563	1.00	40.53	H
ATOM	2412	NH1	ARG	98	119.651	37.977	60.980	1.00	58.43	H
ATOM	2413	NH2	ARG	98	119.113	40.167	61.403	1.00	33.33	H
ATOM	2414	C	ARG	98	120.229	40.507	54.938	1.00	39.44	H
ATOM	2415	O	ARG	98	120.740	41.377	55.637	1.00	41.38	H
ATOM	2416	N	SER	99	119.079	40.666	54.296	1.00	35.04	H
ATOM	2417	CA	SER	99	118.299	41.889	54.388	1.00	24.81	H
ATOM	2418	CB	SER	99	117.920	42.396	53.004	1.00	14.04	H
ATOM	2419	OG	SER	99	117.671	43.780	53.039	1.00	29.22	H
ATOM	2420	C	SER	99	117.050	41.455	55.106	1.00	28.87	H
ATOM	2421	O	SER	99	116.660	40.294	55.009	1.00	36.12	H
ATOM	2422	N	HIS	100	116.418	42.367	55.829	1.00	34.54	H
ATOM	2423	CA	HIS	100	115.209	41.998	56.541	1.00	40.60	H
ATOM	2424	CB	HIS	100	114.976	42.943	57.714	1.00	35.00	H
ATOM	2425	CG	HIS	100	113.731	42.641	58.492	1.00	48.41	H
ATOM	2426	CD2	HIS	100	113.141	41.463	58.812	1.00	45.56	H
ATOM	2427	ND1	HIS	100	112.947	43.625	59.057	1.00	32.49	H
ATOM	2428	CE1	HIS	100	111.930	43.069	59.687	1.00	29.00	H
ATOM	2429	NE2	HIS	100	112.023	41.759	59.557	1.00	33.71	H
ATOM	2430	C	HIS	100	114.037	42.072	55.584	1.00	41.32	H
ATOM	2431	O	HIS	100	113.824	43.110	54.964	1.00	48.72	H

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ATOM   2432  N   TYR   101      113.295  40.976  55.438  1.00 35.01      H
ATOM   2433  CA  TYR   101      112.136  41.001  54.551  1.00 39.86      H
ATOM   2434  CB  TYR   101      111.509  39.606  54.408  1.00 26.52      H
ATOM   2435  CG  TYR   101      110.507  39.496  53.267  1.00 26.05      H
ATOM   2436  CD1 TYR   101      110.933  39.404  51.945  1.00 40.86      H
ATOM   2437  CE1 TYR   101      110.024  39.324  50.885  1.00 27.58      H
ATOM   2438  CD2 TYR   101      109.135  39.502  53.507  1.00 33.96      H
ATOM   2439  CE2 TYR   101      108.216  39.422  52.450  1.00 40.43      H
ATOM   2440  CZ  TYR   101      108.673  39.336  51.145  1.00 27.74      H
ATOM   2441  OH  TYR   101      107.779  39.275  50.100  1.00 40.21      H
ATOM   2442  C   TYR   101      111.167  41.950  55.247  1.00 55.50      H
ATOM   2443  O   TYR   101      111.013  41.892  56.470  1.00 73.70      H
ATOM   2444  N   GLY   102      110.525  42.828  54.482  1.00 45.70      H
ATOM   2445  CA  GLY   102      109.611  43.790  55.079  1.00 43.01      H
ATOM   2446  C   GLY   102      110.364  45.094  55.237  1.00 39.11      H
ATOM   2447  O   GLY   102      110.169  46.028  54.464  1.00 47.90      H
ATOM   2448  N   LEU   103      111.229  45.155  56.243  1.00 31.80      H
ATOM   2449  CA  LEU   103      112.062  46.331  56.475  1.00 34.98      H
ATOM   2450  CB  LEU   103      112.270  46.554  57.975  1.00 47.24      H
ATOM   2451  CG  LEU   103      111.258  47.406  58.750  1.00 56.12      H
ATOM   2452  CD1 LEU   103      109.959  47.593  57.956  1.00 31.67      H
ATOM   2453  CD2 LEU   103      110.993  46.730  60.092  1.00 44.52      H
ATOM   2454  C   LEU   103      113.394  46.019  55.807  1.00 31.85      H
ATOM   2455  O   LEU   103      114.392  45.736  56.471  1.00 32.76      H
ATOM   2456  N   ASP   104      113.368  46.045  54.477  1.00 33.42      H
ATOM   2457  CA  ASP   104      114.512  45.757  53.625  1.00 20.79      H
ATOM   2458  CB  ASP   104      113.992  45.202  52.295  1.00 32.02      H
ATOM   2459  CG  ASP   104      115.093  44.901  51.298  1.00 55.62      H
ATOM   2460  OD1 ASP   104      114.753  44.583  50.136  1.00 38.63      H
ATOM   2461  OD2 ASP   104      116.286  44.985  51.663  1.00 61.09      H
ATOM   2462  C   ASP   104      115.255  47.067  53.415  1.00 29.02      H
ATOM   2463  O   ASP   104      115.021  47.775  52.440  1.00 33.69      H
ATOM   2464  N   TRP   105      116.148  47.386  54.346  1.00 37.55      H
ATOM   2465  CA  TRP   105      116.907  48.628  54.288  1.00 32.28      H
ATOM   2466  CB  TRP   105      116.599  49.484  55.518  1.00 42.44      H
ATOM   2467  CG  TRP   105      115.123  49.751  55.717  1.00 44.69      H
ATOM   2468  CD2 TRP   105      114.456  50.028  56.955  1.00 43.59      H
ATOM   2469  CE2 TRP   105      113.091  50.217  56.662  1.00 39.38      H
ATOM   2470  CE3 TRP   105      114.887  50.136  58.285  1.00 53.16      H
ATOM   2471  CD1 TRP   105      114.157  49.780  54.751  1.00 25.93      H
ATOM   2472  NE1 TRP   105      112.942  50.059  55.313  1.00 37.01      H
ATOM   2473  CZ2 TRP   105      112.144  50.507  57.650  1.00 45.54      H
ATOM   2474  CZ3 TRP   105      113.945  50.425  59.270  1.00 48.69      H
ATOM   2475  CH2 TRP   105      112.588  50.609  58.945  1.00 55.24      H
ATOM   2476  C   TRP   105      118.405  48.421  54.187  1.00 40.80      H
ATOM   2477  O   TRP   105      119.063  49.042  53.352  1.00 47.85      H
ATOM   2478  N   ASN   106      118.952  47.556  55.038  1.00 49.48      H
ATOM   2479  CA  ASN   106      120.389  47.305  55.013  1.00 46.39      H
ATOM   2480  CB  ASN   106      121.103  48.280  55.951  1.00 36.85      H
ATOM   2481  CG  ASN   106      120.869  47.961  57.408  1.00 28.91      H
ATOM   2482  OD1 ASN   106      119.909  48.434  58.013  1.00 32.97      H
ATOM   2483  ND2 ASN   106      121.744  47.152  57.981  1.00 41.71      H
ATOM   2484  C   ASN   106      120.786  45.877  55.363  1.00 48.25      H
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ATOM   2485  O   ASN  106      119.950  45.059  55.760  1.00 46.92      H
ATOM   2486  N   PHE  107      122.079  45.602  55.202  1.00 47.37      H
ATOM   2487  CA  PHE  107      122.665  44.294  55.489  1.00 47.06      H
ATOM   2488  CB  PHE  107      123.589  43.862  54.341  1.00 51.22      H
ATOM   2489  CG  PHE  107      123.004  44.052  52.954  1.00 36.58      H
ATOM   2490  CD1 PHE  107      121.628  44.053  52.737  1.00 43.99      H
ATOM   2491  CD2 PHE  107      123.847  44.180  51.851  1.00 35.28      H
ATOM   2492  CE1 PHE  107      121.107  44.175  51.449  1.00 41.51      H
ATOM   2493  CE2 PHE  107      123.334  44.301  50.561  1.00 20.31      H
ATOM   2494  CZ  PHE  107      121.965  44.296  50.362  1.00 40.17      H
ATOM   2495  C   PHE  107      123.479  44.386  56.787  1.00 45.87      H
ATOM   2496  O   PHE  107      124.641  44.805  56.765  1.00 38.80      H
ATOM   2497  N   ASP  108      122.874  43.982  57.905  1.00 44.31      H
ATOM   2498  CA  ASP  108      123.528  44.053  59.215  1.00 40.48      H
ATOM   2499  CB  ASP  108      122.479  44.243  60.325  1.00 54.96      H
ATOM   2500  CG  ASP  108      121.048  44.057  59.833  1.00 66.26      H
ATOM   2501  OD1 ASP  108      120.304  45.059  59.790  1.00 56.03      H
ATOM   2502  OD2 ASP  108      120.664  42.914  59.494  1.00 63.18      H
ATOM   2503  C   ASP  108      124.445  42.889  59.600  1.00 27.53      H
ATOM   2504  O   ASP  108      125.418  43.077  60.328  1.00 16.20      H
ATOM   2505  N   VAL  109      124.133  41.690  59.128  1.00 18.58      H
ATOM   2506  CA  VAL  109      124.946  40.527  59.458  1.00 20.11      H
ATOM   2507  CB  VAL  109      124.072  39.410  60.037  1.00 25.57      H
ATOM   2508  CG1 VAL  109      124.936  38.353  60.691  1.00 22.40      H
ATOM   2509  CG2 VAL  109      123.098  39.998  61.038  1.00 21.93      H
ATOM   2510  C   VAL  109      125.704  39.984  58.246  1.00 26.64      H
ATOM   2511  O   VAL  109      125.110  39.594  57.248  1.00 34.79      H
ATOM   2512  N   TRP  110      127.023  39.949  58.336  1.00 27.30      H
ATOM   2513  CA  TRP  110      127.818  39.459  57.229  1.00 27.28      H
ATOM   2514  CB  TRP  110      128.834  40.519  56.810  1.00 33.78      H
ATOM   2515  CG  TRP  110      128.248  41.738  56.167  1.00 36.21      H
ATOM   2516  CD2 TRP  110      128.440  42.162  54.813  1.00 25.48      H
ATOM   2517  CE2 TRP  110      127.801  43.411  54.669  1.00 33.24      H
ATOM   2518  CE3 TRP  110      129.097  41.609  53.711  1.00 13.14      H
ATOM   2519  CD1 TRP  110      127.511  42.715  56.770  1.00 42.55      H
ATOM   2520  NE1 TRP  110      127.236  43.728  55.879  1.00 36.86      H
ATOM   2521  CZ2 TRP  110      127.795  44.115  53.467  1.00 25.21      H
ATOM   2522  CZ3 TRP  110      129.096  42.314  52.511  1.00 30.00      H
ATOM   2523  CH2 TRP  110      128.449  43.553  52.402  1.00 26.50      H
ATOM   2524  C   TRP  110      128.566  38.187  57.601  1.00 29.69      H
ATOM   2525  O   TRP  110      128.946  37.993  58.753  1.00 39.20      H
ATOM   2526  N   GLY  111      128.774  37.317  56.621  1.00 26.69      H
ATOM   2527  CA  GLY  111      129.523  36.110  56.880  1.00 15.66      H
ATOM   2528  C   GLY  111      130.988  36.505  56.847  1.00 32.31      H
ATOM   2529  O   GLY  111      131.327  37.622  56.451  1.00 24.60      H
ATOM   2530  N   ALA  112      131.867  35.604  57.261  1.00 41.72      H
ATOM   2531  CA  ALA  112      133.287  35.907  57.249  1.00 41.34      H
ATOM   2532  CB  ALA  112      134.033  34.911  58.119  1.00 39.24      H
ATOM   2533  C   ALA  112      133.857  35.896  55.826  1.00 45.93      H
ATOM   2534  O   ALA  112      134.902  36.492  55.568  1.00 49.85      H
ATOM   2535  N   GLY  113      133.178  35.217  54.906  1.00 45.09      H
ATOM   2536  CA  GLY  113      133.665  35.161  53.538  1.00 44.98      H
ATOM   2537  C   GLY  113      134.180  33.798  53.099  1.00 44.48      H
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ATOM	2538	O	GLY	113	134.273	32.862	53.894	1.00	40.99	H
ATOM	2539	N	THR	114	134.519	33.690	51.819	1.00	44.31	H
ATOM	2540	CA	THR	114	135.019	32.446	51.242	1.00	31.88	H
ATOM	2541	CB	THR	114	133.845	31.530	50.772	1.00	20.38	H
ATOM	2542	OG1	THR	114	133.279	30.861	51.900	1.00	35.87	H
ATOM	2543	CG2	THR	114	134.328	30.478	49.789	1.00	32.39	H
ATOM	2544	C	THR	114	135.865	32.814	50.032	1.00	33.60	H
ATOM	2545	O	THR	114	135.325	33.054	48.953	1.00	42.98	H
ATOM	2546	N	THR	115	137.182	32.880	50.208	1.00	35.92	H
ATOM	2547	CA	THR	115	138.055	33.208	49.089	1.00	33.21	H
ATOM	2548	CB	THR	115	139.525	33.317	49.499	1.00	43.78	H
ATOM	2549	OG1	THR	115	139.649	34.185	50.632	1.00	41.45	H
ATOM	2550	CG2	THR	115	140.351	33.867	48.332	1.00	43.50	H
ATOM	2551	C	THR	115	137.938	32.100	48.059	1.00	39.18	H
ATOM	2552	O	THR	115	137.823	30.918	48.406	1.00	28.11	H
ATOM	2553	N	VAL	116	137.958	32.490	46.791	1.00	36.51	H
ATOM	2554	CA	VAL	116	137.840	31.537	45.708	1.00	40.64	H
ATOM	2555	CB	VAL	116	136.443	31.616	45.051	1.00	41.04	H
ATOM	2556	CG1	VAL	116	136.337	30.599	43.931	1.00	35.25	H
ATOM	2557	CG2	VAL	116	135.362	31.359	46.096	1.00	33.28	H
ATOM	2558	C	VAL	116	138.899	31.816	44.661	1.00	43.76	H
ATOM	2559	O	VAL	116	139.009	32.929	44.146	1.00	46.23	H
ATOM	2560	N	THR	117	139.683	30.791	44.354	1.00	44.39	H
ATOM	2561	CA	THR	117	140.740	30.919	43.370	1.00	40.89	H
ATOM	2562	CB	THR	117	142.095	30.552	43.969	1.00	38.40	H
ATOM	2563	OG1	THR	117	142.320	31.340	45.145	1.00	36.59	H
ATOM	2564	CG2	THR	117	143.205	30.810	42.966	1.00	32.70	H
ATOM	2565	C	THR	117	140.449	30.001	42.203	1.00	38.02	H
ATOM	2566	O	THR	117	139.802	28.971	42.357	1.00	37.58	H
ATOM	2567	N	VAL	118	140.928	30.386	41.031	1.00	45.45	H
ATOM	2568	CA	VAL	118	140.705	29.597	39.838	1.00	47.20	H
ATOM	2569	CB	VAL	118	140.199	30.481	38.694	1.00	54.07	H
ATOM	2570	CG1	VAL	118	138.698	30.704	38.844	1.00	40.64	H
ATOM	2571	CG2	VAL	118	140.942	31.807	38.700	1.00	46.30	H
ATOM	2572	C	VAL	118	141.973	28.890	39.400	1.00	42.28	H
ATOM	2573	O	VAL	118	141.946	27.706	39.060	1.00	42.04	H
ATOM	2574	N	SER	119	143.081	29.622	39.415	1.00	40.12	H
ATOM	2575	CA	SER	119	144.381	29.089	39.015	1.00	48.99	H
ATOM	2576	CB	SER	119	145.469	29.569	39.983	1.00	49.51	H
ATOM	2577	OG	SER	119	146.419	30.398	39.331	1.00	31.69	H
ATOM	2578	C	SER	119	144.418	27.563	38.929	1.00	49.87	H
ATOM	2579	O	SER	119	144.028	26.856	39.870	1.00	42.52	H
ATOM	2580	N	SER	120	144.887	27.067	37.787	1.00	55.96	H
ATOM	2581	CA	SER	120	144.996	25.633	37.540	1.00	53.80	H
ATOM	2582	CB	SER	120	144.774	25.334	36.050	1.00	57.59	H
ATOM	2583	OG	SER	120	145.785	25.919	35.239	1.00	55.34	H
ATOM	2584	C	SER	120	146.377	25.145	37.965	1.00	53.97	H
ATOM	2585	O	SER	120	146.879	24.149	37.447	1.00	49.63	H
ATOM	2586	N	ALA	121	146.974	25.858	38.919	1.00	62.49	H
ATOM	2587	CA	ALA	121	148.307	25.544	39.445	1.00	58.34	H
ATOM	2588	CB	ALA	121	148.830	26.714	40.278	1.00	52.59	H
ATOM	2589	C	ALA	121	148.333	24.268	40.284	1.00	54.04	H
ATOM	2590	O	ALA	121	147.318	23.584	40.432	1.00	56.38	H

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ATOM   2591  N   LYS   122      149.498  23.951  40.841  1.00 48.35      H
ATOM   2592  CA  LYS   122      149.624  22.750  41.649  1.00 46.60      H
ATOM   2593  CB  LYS   122      150.912  21.998  41.318  1.00 51.72      H
ATOM   2594  CG  LYS   122      150.682  20.565  40.843  1.00 51.16      H
ATOM   2595  CD  LYS   122      150.117  19.675  41.948  1.00 40.43      H
ATOM   2596  CE  LYS   122      151.191  18.754  42.525  1.00 52.69      H
ATOM   2597  NZ  LYS   122      150.980  17.320  42.166  1.00 52.23      H
ATOM   2598  C   LYS   122      149.577  23.043  43.133  1.00 52.24      H
ATOM   2599  O   LYS   122      150.258  23.933  43.644  1.00 51.54      H
ATOM   2600  N   THR   123      148.758  22.255  43.811  1.00 58.75      H
ATOM   2601  CA  THR   123      148.562  22.363  45.249  1.00 59.16      H
ATOM   2602  CB  THR   123      147.422  21.459  45.722  1.00 70.62      H
ATOM   2603  OG1 THR   123      146.234  21.774  44.989  1.00100.00      H
ATOM   2604  CG2 THR   123      147.174  21.644  47.216  1.00 71.56      H
ATOM   2605  C   THR   123      149.851  21.904  45.913  1.00 59.76      H
ATOM   2606  O   THR   123      150.327  20.797  45.654  1.00 51.50      H
ATOM   2607  N   THR   124      150.430  22.671  46.957  1.00 60.58      H
ATOM   2608  CA  THR   124      151.805  22.409  47.339  1.00 54.63      H
ATOM   2609  CB  THR   124      152.776  23.187  46.433  1.00 44.65      H
ATOM   2610  OG1 THR   124      152.458  22.930  45.055  1.00 43.48      H
ATOM   2611  CG2 THR   124      154.207  22.779  46.719  1.00 35.75      H
ATOM   2612  C   THR   124      152.034  22.844  48.776  1.00 61.90      H
ATOM   2613  O   THR   124      151.832  24.005  49.113  1.00 66.47      H
ATOM   2614  N   PRO   125      152.470  21.918  49.644  1.00 63.12      H
ATOM   2615  CD  PRO   125      152.792  20.505  49.387  1.00 43.60      H
ATOM   2616  CA  PRO   125      152.705  22.286  51.044  1.00 64.11      H
ATOM   2617  CB  PRO   125      153.012  20.956  51.725  1.00 53.31      H
ATOM   2618  CG  PRO   125      153.525  20.089  50.636  1.00 27.09      H
ATOM   2619  C   PRO   125      153.858  23.274  51.141  1.00 60.12      H
ATOM   2620  O   PRO   125      154.781  23.255  50.329  1.00 49.68      H
ATOM   2621  N   PRO   126      153.811  24.153  52.140  1.00 55.19      H
ATOM   2622  CD  PRO   126      152.761  24.258  53.169  1.00 61.07      H
ATOM   2623  CA  PRO   126      154.855  25.156  52.333  1.00 47.53      H
ATOM   2624  CB  PRO   126      154.213  26.141  53.296  1.00 49.84      H
ATOM   2625  CG  PRO   126      153.315  25.289  54.118  1.00 73.92      H
ATOM   2626  C   PRO   126      156.155  24.608  52.891  1.00 49.11      H
ATOM   2627  O   PRO   126      156.148  23.695  53.716  1.00 53.71      H
ATOM   2628  N   SER   127      157.266  25.174  52.429  1.00 38.85      H
ATOM   2629  CA  SER   127      158.586  24.792  52.913  1.00 21.97      H
ATOM   2630  CB  SER   127      159.628  24.904  51.798  1.00 39.50      H
ATOM   2631  OG  SER   127      159.487  23.866  50.845  1.00 52.42      H
ATOM   2632  C   SER   127      158.864  25.826  53.990  1.00 33.98      H
ATOM   2633  O   SER   127      159.021  27.008  53.687  1.00 34.88      H
ATOM   2634  N   VAL   128      158.903  25.393  55.243  1.00 39.20      H
ATOM   2635  CA  VAL   128      159.135  26.308  56.353  1.00 46.26      H
ATOM   2636  CB  VAL   128      158.247  25.929  57.562  1.00 49.37      H
ATOM   2637  CG1 VAL   128      158.162  27.089  58.545  1.00 42.90      H
ATOM   2638  CG2 VAL   128      156.862  25.538  57.078  1.00 51.53      H
ATOM   2639  C   VAL   128      160.594  26.350  56.794  1.00 37.55      H
ATOM   2640  O   VAL   128      161.183  25.329  57.153  1.00 49.56      H
ATOM   2641  N   TYR   129      161.172  27.545  56.765  1.00 48.51      H
ATOM   2642  CA  TYR   129      162.562  27.740  57.150  1.00 44.86      H
ATOM   2643  CB  TYR   129      163.364  28.279  55.969  1.00 35.54      H
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ATOM   2644  CG  TYR   129      163.348  27.402  54.736  1.00 27.55      H
ATOM   2645  CD1 TYR   129      163.718  26.059  54.800  1.00 42.44      H
ATOM   2646  CE1 TYR   129      163.729  25.256  53.654  1.00 44.45      H
ATOM   2647  CD2 TYR   129      162.986  27.928  53.497  1.00 28.77      H
ATOM   2648  CE2 TYR   129      162.991  27.135  52.345  1.00 44.26      H
ATOM   2649  CZ  TYR   129      163.363  25.806  52.430  1.00 46.95      H
ATOM   2650  OH  TYR   129      163.366  25.036  51.291  1.00 71.81      H
ATOM   2651  C   TYR   129      162.670  28.722  58.312  1.00 41.49      H
ATOM   2652  O   TYR   129      162.195  29.856  58.225  1.00 48.76      H
ATOM   2653  N   PRO   130      163.309  28.302  59.415  1.00 46.24      H
ATOM   2654  CD  PRO   130      163.913  26.972  59.604  1.00 58.08      H
ATOM   2655  CA  PRO   130      163.482  29.152  60.597  1.00 40.62      H
ATOM   2656  CB  PRO   130      163.970  28.180  61.661  1.00 49.21      H
ATOM   2657  CG  PRO   130      164.699  27.132  60.872  1.00 50.86      H
ATOM   2658  C   PRO   130      164.486  30.276  60.359  1.00 42.13      H
ATOM   2659  O   PRO   130      165.506  30.079  59.704  1.00 49.80      H
ATOM   2660  N   LEU   131      164.195  31.455  60.895  1.00 40.92      H
ATOM   2661  CA  LEU   131      165.081  32.598  60.732  1.00 35.23      H
ATOM   2662  CB  LEU   131      164.319  33.772  60.120  1.00 34.49      H
ATOM   2663  CG  LEU   131      163.916  33.644  58.652  1.00 34.92      H
ATOM   2664  CD1 LEU   131      163.135  34.878  58.245  1.00 11.51      H
ATOM   2665  CD2 LEU   131      165.144  33.483  57.781  1.00 26.67      H
ATOM   2666  C   LEU   131      165.666  33.014  62.077  1.00 40.36      H
ATOM   2667  O   LEU   131      164.956  33.557  62.927  1.00 46.95      H
ATOM   2668  N   ALA   132      166.956  32.755  62.263  1.00 56.70      H
ATOM   2669  CA  ALA   132      167.632  33.110  63.507  1.00 56.71      H
ATOM   2670  CB  ALA   132      168.300  31.886  64.096  1.00 57.53      H
ATOM   2671  C   ALA   132      168.662  34.210  63.268  1.00 55.87      H
ATOM   2672  O   ALA   132      169.276  34.279  62.204  1.00 54.54      H
ATOM   2673  N   PRO   133      168.864  35.091  64.262  1.00 57.72      H
ATOM   2674  CD  PRO   133      168.161  35.065  65.557  1.00 47.07      H
ATOM   2675  CA  PRO   133      169.815  36.206  64.187  1.00 60.50      H
ATOM   2676  CB  PRO   133      169.496  37.030  65.431  1.00 59.11      H
ATOM   2677  CG  PRO   133      168.946  36.033  66.393  1.00 46.85      H
ATOM   2678  C   PRO   133      171.285  35.780  64.154  1.00 64.47      H
ATOM   2679  O   PRO   133      171.743  35.030  65.021  1.00 63.82      H
ATOM   2680  N   GLY   134      172.021  36.276  63.161  1.00 66.38      H
ATOM   2681  CA  GLY   134      173.429  35.937  63.030  1.00 54.50      H
ATOM   2682  C   GLY   134      174.356  36.531  64.074  1.00 60.13      H
ATOM   2683  O   GLY   134      175.515  36.851  63.795  1.00 70.75      H
ATOM   2684  N   SER   135      173.893  36.652  65.276  1.00 74.93      H
ATOM   2685  CA  SER   135      174.743  37.216  66.319  1.00 86.16      H
ATOM   2686  CB  SER   135      176.038  36.396  66.439  1.00 90.22      H
ATOM   2687  OG  SER   135      176.965  36.773  65.426  1.00100.00      H
ATOM   2688  C   SER   135      175.096  38.660  65.950  1.00 88.57      H
ATOM   2689  O   SER   135      176.088  38.928  65.255  1.00 77.68      H
ATOM   2690  N   ALA   136      174.255  39.552  66.431  1.00 94.60      H
ATOM   2691  CA  ALA   136      174.413  40.992  66.206  1.00 96.15      H
ATOM   2692  CB  ALA   136      174.299  41.304  64.714  1.00 91.75      H
ATOM   2693  C   ALA   136      173.334  41.759  66.962  1.00 99.99      H
ATOM   2694  O   ALA   136      172.158  41.398  66.918  1.00 99.98      H
ATOM   2695  N   ALA   137      173.740  42.818  67.655  1.00 99.99      H
ATOM   2696  CA  ALA   137      172.802  43.637  68.417  1.00100.00      H
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ATOM	2697	CB	ALA	137	173.565	44.631	69.285	1.00	89.73	H
ATOM	2698	C	ALA	137	171.860	44.377	67.474	1.00	99.97	H
ATOM	2699	O	ALA	137	172.119	45.518	67.094	1.00	99.95	H
ATOM	2700	N	GLN	138	170.768	43.718	67.103	1.00	99.99	H
ATOM	2701	CA	GLN	138	169.788	44.308	66.198	1.00	99.99	H
ATOM	2702	CB	GLN	138	168.740	43.264	65.804	1.00	92.32	H
ATOM	2703	CG	GLN	138	167.946	42.702	66.972	1.00	80.27	H
ATOM	2704	CD	GLN	138	166.461	42.627	66.679	1.00	62.10	H
ATOM	2705	OE1	GLN	138	166.051	42.463	65.530	1.00	72.23	H
ATOM	2706	NE2	GLN	138	165.646	42.749	67.720	1.00	47.02	H
ATOM	2707	C	GLN	138	169.100	45.522	66.818	1.00	99.97	H
ATOM	2708	O	GLN	138	168.850	46.516	66.136	1.00	99.97	H
ATOM	2709	N	THR	139	168.797	45.438	68.116	1.00	99.99	H
ATOM	2710	CA	THR	139	168.138	46.530	68.810	1.00	100.00	H
ATOM	2711	CB	THR	139	166.629	46.520	68.570	1.00	100.00	H
ATOM	2712	OG1	THR	139	166.068	45.306	69.085	1.00	99.99	H
ATOM	2713	CG2	THR	139	166.326	46.637	67.084	1.00	99.99	H
ATOM	2714	C	THR	139	168.421	46.461	70.301	1.00	99.99	H
ATOM	2715	O	THR	139	167.865	45.622	71.014	1.00	99.98	H
ATOM	2716	N	ASN	140	169.282	47.359	70.792	1.00	99.98	H
ATOM	2717	CA	ASN	140	169.654	47.435	72.187	1.00	96.92	H
ATOM	2718	CB	ASN	140	168.714	48.381	72.927	1.00	94.82	H
ATOM	2719	CG	ASN	140	168.783	49.786	72.357	1.00	91.71	H
ATOM	2720	OD1	ASN	140	169.866	50.280	72.032	1.00	88.37	H
ATOM	2721	ND2	ASN	140	167.633	50.433	72.229	1.00	91.05	H
ATOM	2722	C	ASN	140	169.724	46.052	72.801	1.00	93.43	H
ATOM	2723	O	ASN	140	170.715	45.321	72.647	1.00	83.04	H
ATOM	2724	N	SER	141	168.684	45.691	73.529	1.00	91.74	H
ATOM	2725	CA	SER	141	168.629	44.391	74.200	1.00	78.99	H
ATOM	2726	CB	SER	141	168.101	44.544	75.629	1.00	69.11	H
ATOM	2727	OG	SER	141	166.899	45.297	75.639	1.00	60.50	H
ATOM	2728	C	SER	141	167.726	43.431	73.432	1.00	75.37	H
ATOM	2729	O	SER	141	168.173	42.413	72.896	1.00	88.08	H
ATOM	2730	N	MET	142	166.479	43.787	73.391	1.00	59.56	H
ATOM	2731	CA	MET	142	165.449	42.970	72.766	1.00	44.97	H
ATOM	2732	CB	MET	142	164.206	43.807	72.516	1.00	56.70	H
ATOM	2733	CG	MET	142	163.645	44.397	73.800	1.00	86.09	H
ATOM	2734	SD	MET	142	162.177	45.354	73.535	1.00	99.97	H
ATOM	2735	CE	MET	142	162.239	46.814	74.546	1.00	99.42	H
ATOM	2736	C	MET	142	165.871	42.372	71.432	1.00	32.94	H
ATOM	2737	O	MET	142	166.780	42.880	70.772	1.00	33.63	H
ATOM	2738	N	VAL	143	165.183	41.304	71.027	1.00	27.18	H
ATOM	2739	CA	VAL	143	165.501	40.615	69.779	1.00	24.76	H
ATOM	2740	CB	VAL	143	166.197	39.272	70.065	1.00	10.57	H
ATOM	2741	CG1	VAL	143	165.186	38.268	70.594	1.00	34.15	H
ATOM	2742	CG2	VAL	143	166.872	38.750	68.800	1.00	21.19	H
ATOM	2743	C	VAL	143	164.299	40.345	68.871	1.00	32.37	H
ATOM	2744	O	VAL	143	163.150	40.451	69.293	1.00	31.65	H
ATOM	2745	N	THR	144	164.588	39.981	67.623	1.00	32.76	H
ATOM	2746	CA	THR	144	163.561	39.686	66.630	1.00	32.18	H
ATOM	2747	CB	THR	144	163.459	40.810	65.580	1.00	23.79	H
ATOM	2748	OG1	THR	144	162.934	41.991	66.196	1.00	53.98	H
ATOM	2749	CG2	THR	144	162.543	40.394	64.436	1.00	20.69	H

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ATOM   2750  C   THR   144      163.855  38.384  65.891  1.00 39.99      H
ATOM   2751  O   THR   144      164.958  38.178  65.384  1.00 46.16      H
ATOM   2752  N   LEU   145      162.858  37.507  65.830  1.00 32.72      H
ATOM   2753  CA  LEU   145      163.004  36.237  65.138  1.00 13.00      H
ATOM   2754  CB  LEU   145      162.645  35.082  66.062  1.00 22.16      H
ATOM   2755  CG  LEU   145      163.748  34.615  67.003  1.00 24.64      H
ATOM   2756  CD1 LEU   145      163.529  35.237  68.376  1.00 21.35      H
ATOM   2757  CD2 LEU   145      163.736  33.095  67.084  1.00 18.63      H
ATOM   2758  C   LEU   145      162.064  36.220  63.948  1.00 24.06      H
ATOM   2759  O   LEU   145      161.188  37.073  63.831  1.00 32.59      H
ATOM   2760  N   GLY   146      162.244  35.240  63.072  1.00 32.97      H
ATOM   2761  CA  GLY   146      161.397  35.153  61.903  1.00 32.08      H
ATOM   2762  C   GLY   146      161.254  33.741  61.381  1.00 29.89      H
ATOM   2763  O   GLY   146      161.995  32.845  61.778  1.00 19.61      H
ATOM   2764  N   CYS   147      160.283  33.553  60.499  1.00 39.08      H
ATOM   2765  CA  CYS   147      160.023  32.258  59.885  1.00 38.87      H
ATOM   2766  C   CYS   147      159.696  32.518  58.425  1.00 30.42      H
ATOM   2767  O   CYS   147      158.934  33.431  58.109  1.00 37.75      H
ATOM   2768  CB  CYS   147      158.843  31.560  60.574  1.00 55.35      H
ATOM   2769  SG  CYS   147      159.313  30.021  61.435  1.00 81.70      H
ATOM   2770  N   LEU   148      160.288  31.730  57.536  1.00 28.82      H
ATOM   2771  CA  LEU   148      160.037  31.891  56.115  1.00 27.56      H
ATOM   2772  CB  LEU   148      161.363  31.967  55.352  1.00 34.75      H
ATOM   2773  CG  LEU   148      161.254  32.129  53.831  1.00 34.95      H
ATOM   2774  CD1 LEU   148      160.549  33.425  53.488  1.00 18.93      H
ATOM   2775  CD2 LEU   148      162.636  32.111  53.219  1.00 21.69      H
ATOM   2776  C   LEU   148      159.187  30.737  55.580  1.00 24.86      H
ATOM   2777  O   LEU   148      159.576  29.572  55.663  1.00 30.70      H
ATOM   2778  N   VAL   149      158.020  31.077  55.045  1.00 27.57      H
ATOM   2779  CA  VAL   149      157.091  30.096  54.487  1.00 25.23      H
ATOM   2780  CB  VAL   149      155.658  30.376  54.969  1.00  3.47      H
ATOM   2781  CG1 VAL   149      154.800  29.127  54.827  1.00 25.66      H
ATOM   2782  CG2 VAL   149      155.695  30.830  56.417  1.00 15.58      H
ATOM   2783  C   VAL   149      157.152  30.207  52.969  1.00 43.19      H
ATOM   2784  O   VAL   149      156.520  31.080  52.375  1.00 55.54      H
ATOM   2785  N   LYS   150      157.906  29.313  52.341  1.00 45.51      H
ATOM   2786  CA  LYS   150      158.078  29.377  50.897  1.00 36.67      H
ATOM   2787  CB  LYS   150      159.572  29.376  50.570  1.00 23.27      H
ATOM   2788  CG  LYS   150      159.950  30.226  49.366  1.00 37.80      H
ATOM   2789  CD  LYS   150      161.441  30.145  49.070  1.00 45.44      H
ATOM   2790  CE  LYS   150      161.689  29.729  47.631  1.00 47.90      H
ATOM   2791  NZ  LYS   150      163.035  30.147  47.149  1.00 74.67      H
ATOM   2792  C   LYS   150      157.393  28.322  50.047  1.00 47.62      H
ATOM   2793  O   LYS   150      157.086  27.225  50.503  1.00 61.91      H
ATOM   2794  N   GLY   151      157.172  28.686  48.789  1.00 52.19      H
ATOM   2795  CA  GLY   151      156.562  27.808  47.805  1.00 56.42      H
ATOM   2796  C   GLY   151      155.344  26.981  48.176  1.00 65.95      H
ATOM   2797  O   GLY   151      155.404  25.751  48.146  1.00 83.19      H
ATOM   2798  N   TYR   152      154.238  27.641  48.522  1.00 68.59      H
ATOM   2799  CA  TYR   152      153.018  26.919  48.866  1.00 57.51      H
ATOM   2800  CB  TYR   152      152.646  27.131  50.342  1.00 55.56      H
ATOM   2801  CG  TYR   152      152.211  28.529  50.695  1.00 49.75      H
ATOM   2802  CD1 TYR   152      150.893  28.938  50.497  1.00 37.14      H
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ATOM   2803  CE1 TYR   152      150.474  30.222  50.847  1.00 37.53      H
ATOM   2804  CD2 TYR   152      153.104  29.437  51.250  1.00 44.59      H
ATOM   2805  CE2 TYR   152      152.696  30.726  51.605  1.00 49.92      H
ATOM   2806  CZ  TYR   152      151.379  31.107  51.400  1.00 51.57      H
ATOM   2807  OH  TYR   152      150.967  32.371  51.745  1.00 62.33      H
ATOM   2808  C   TYR   152      151.874  27.358  47.965  1.00 48.01      H
ATOM   2809  O   TYR   152      151.962  28.386  47.291  1.00 28.34      H
ATOM   2810  N   PHE   153      150.810  26.567  47.947  1.00 50.83      H
ATOM   2811  CA  PHE   153      149.646  26.857  47.125  1.00 59.21      H
ATOM   2812  CB  PHE   153      150.003  26.728  45.646  1.00 64.09      H
ATOM   2813  CG  PHE   153      148.926  27.214  44.725  1.00 66.51      H
ATOM   2814  CD1 PHE   153      148.786  28.571  44.464  1.00 66.83      H
ATOM   2815  CD2 PHE   153      148.036  26.323  44.147  1.00 60.06      H
ATOM   2816  CE1 PHE   153      147.770  29.037  43.638  1.00 55.52      H
ATOM   2817  CE2 PHE   153      147.013  26.775  43.316  1.00 50.07      H
ATOM   2818  CZ  PHE   153      146.880  28.138  43.061  1.00 49.86      H
ATOM   2819  C   PHE   153      148.499  25.907  47.449  1.00 52.00      H
ATOM   2820  O   PHE   153      148.709  24.702  47.619  1.00 57.40      H
ATOM   2821  N   PRO   154      147.265  26.436  47.538  1.00 46.46      H
ATOM   2822  CD  PRO   154      146.057  25.644  47.815  1.00 39.60      H
ATOM   2823  CA  PRO   154      146.931  27.851  47.353  1.00 44.22      H
ATOM   2824  CB  PRO   154      145.533  27.795  46.772  1.00 48.46      H
ATOM   2825  CG  PRO   154      144.923  26.614  47.482  1.00 49.48      H
ATOM   2826  C   PRO   154      146.932  28.559  48.694  1.00 48.75      H
ATOM   2827  O   PRO   154      147.255  27.958  49.722  1.00 45.97      H
ATOM   2828  N   GLU   155      146.573  29.835  48.683  1.00 45.51      H
ATOM   2829  CA  GLU   155      146.508  30.585  49.927  1.00 46.54      H
ATOM   2830  CB  GLU   155      146.287  32.072  49.649  1.00 42.15      H
ATOM   2831  CG  GLU   155      147.565  32.888  49.519  1.00 52.55      H
ATOM   2832  CD  GLU   155      147.866  33.696  50.773  1.00 54.96      H
ATOM   2833  OE1 GLU   155      148.005  33.096  51.862  1.00 38.84      H
ATOM   2834  OE2 GLU   155      147.964  34.938  50.667  1.00 57.00      H
ATOM   2835  C   GLU   155      145.292  30.003  50.625  1.00 43.57      H
ATOM   2836  O   GLU   155      144.445  29.388  49.974  1.00 52.29      H
ATOM   2837  N   PRO   156      145.203  30.148  51.953  1.00 28.63      H
ATOM   2838  CD  PRO   156      143.990  29.751  52.682  1.00 21.85      H
ATOM   2839  CA  PRO   156      146.134  30.804  52.873  1.00 32.78      H
ATOM   2840  CB  PRO   156      145.212  31.685  53.699  1.00 41.77      H
ATOM   2841  CG  PRO   156      143.896  30.824  53.775  1.00 10.50      H
ATOM   2842  C   PRO   156      146.879  29.797  53.776  1.00 40.11      H
ATOM   2843  O   PRO   156      146.757  28.583  53.613  1.00 30.70      H
ATOM   2844  N   VAL   157      147.641  30.333  54.722  1.00 47.16      H
ATOM   2845  CA  VAL   157      148.383  29.540  55.693  1.00 58.27      H
ATOM   2846  CB  VAL   157      149.898  29.452  55.362  1.00 52.20      H
ATOM   2847  CG1 VAL   157      150.106  28.797  54.011  1.00 56.74      H
ATOM   2848  CG2 VAL   157      150.525  30.837  55.387  1.00 45.36      H
ATOM   2849  C   VAL   157      148.239  30.258  57.032  1.00 68.19      H
ATOM   2850  O   VAL   157      147.993  31.466  57.076  1.00 78.90      H
ATOM   2851  N   THR   158      148.395  29.520  58.122  1.00 68.08      H
ATOM   2852  CA  THR   158      148.282  30.116  59.442  1.00 63.24      H
ATOM   2853  CB  THR   158      147.209  29.396  60.279  1.00 61.67      H
ATOM   2854  OG1 THR   158      145.962  29.426  59.573  1.00 52.99      H
ATOM   2855  CG2 THR   158      147.034  30.079  61.632  1.00 56.86      H
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ATOM   2856  C   THR  158      149.623  30.035  60.154  1.00 64.54      H
ATOM   2857  O   THR  158      150.187  28.954  60.312  1.00 65.02      H
ATOM   2858  N   VAL  159      150.131  31.190  60.571  1.00 48.72      H
ATOM   2859  CA  VAL  159      151.409  31.266  61.256  1.00 38.04      H
ATOM   2860  CB  VAL  159      152.384  32.209  60.517  1.00 35.68      H
ATOM   2861  CG1 VAL  159      153.745  32.207  61.195  1.00 13.69      H
ATOM   2862  CG2 VAL  159      152.520  31.765  59.072  1.00 35.33      H
ATOM   2863  C   VAL  159      151.239  31.746  62.690  1.00 32.37      H
ATOM   2864  O   VAL  159      150.940  32.917  62.951  1.00 46.22      H
ATOM   2865  N   THR  160      151.430  30.812  63.616  1.00 34.81      H
ATOM   2866  CA  THR  160      151.316  31.088  65.037  1.00 30.02      H
ATOM   2867  CB  THR  160      150.305  30.146  65.702  1.00 29.19      H
ATOM   2868  OG1 THR  160      149.788  29.230  64.729  1.00 41.86      H
ATOM   2869  CG2 THR  160      149.165  30.943  66.295  1.00 40.64      H
ATOM   2870  C   THR  160      152.676  30.872  65.681  1.00 28.21      H
ATOM   2871  O   THR  160      153.501  30.118  65.169  1.00 44.55      H
ATOM   2872  N   TRP  161      152.909  31.546  66.800  1.00 43.52      H
ATOM   2873  CA  TRP  161      154.171  31.404  67.506  1.00 54.28      H
ATOM   2874  CB  TRP  161      154.833  32.773  67.672  1.00 46.91      H
ATOM   2875  CG  TRP  161      155.369  33.327  66.379  1.00 31.10      H
ATOM   2876  CD2 TRP  161      156.648  33.059  65.790  1.00 39.01      H
ATOM   2877  CE2 TRP  161      156.710  33.782  64.579  1.00 43.01      H
ATOM   2878  CE3 TRP  161      157.748  32.277  66.169  1.00 31.39      H
ATOM   2879  CD1 TRP  161      154.727  34.179  65.525  1.00 30.94      H
ATOM   2880  NE1 TRP  161      155.525  34.458  64.443  1.00 31.32      H
ATOM   2881  CZ2 TRP  161      157.829  33.749  63.741  1.00 35.89      H
ATOM   2882  CZ3 TRP  161      158.861  32.242  65.335  1.00 23.31      H
ATOM   2883  CH2 TRP  161      158.893  32.975  64.134  1.00 38.71      H
ATOM   2884  C   TRP  161      153.920  30.746  68.862  1.00 57.21      H
ATOM   2885  O   TRP  161      153.157  31.255  69.691  1.00 61.27      H
ATOM   2886  N   ASN  162      154.569  29.602  69.071  1.00 56.37      H
ATOM   2887  CA  ASN  162      154.426  28.829  70.298  1.00 50.72      H
ATOM   2888  CB  ASN  162      154.818  29.676  71.515  1.00 39.98      H
ATOM   2889  CG  ASN  162      156.331  29.771  71.698  1.00 45.87      H
ATOM   2890  OD1 ASN  162      157.103  29.298  70.854  1.00 61.54      H
ATOM   2891  ND2 ASN  162      156.760  30.385  72.801  1.00 49.15      H
ATOM   2892  C   ASN  162      152.979  28.365  70.399  1.00 44.59      H
ATOM   2893  O   ASN  162      152.387  28.329  71.479  1.00 33.04      H
ATOM   2894  N   SER  163      152.419  28.021  69.242  1.00 55.71      H
ATOM   2895  CA  SER  163      151.048  27.541  69.133  1.00 65.28      H
ATOM   2896  CB  SER  163      150.858  26.313  70.021  1.00 69.26      H
ATOM   2897  OG  SER  163      151.917  25.391  69.823  1.00 87.88      H
ATOM   2898  C   SER  163      149.993  28.592  69.468  1.00 64.07      H
ATOM   2899  O   SER  163      148.799  28.363  69.267  1.00 71.86      H
ATOM   2900  N   GLY  164      150.430  29.744  69.970  1.00 56.72      H
ATOM   2901  CA  GLY  164      149.490  30.798  70.308  1.00 44.67      H
ATOM   2902  C   GLY  164      149.953  31.629  71.482  1.00 45.89      H
ATOM   2903  O   GLY  164      149.611  32.807  71.597  1.00 41.13      H
ATOM   2904  N   SER  165      150.739  31.011  72.355  1.00 56.45      H
ATOM   2905  CA  SER  165      151.259  31.688  73.533  1.00 57.02      H
ATOM   2906  CB  SER  165      152.169  30.745  74.316  1.00 62.37      H
ATOM   2907  OG  SER  165      151.418  29.663  74.836  1.00 50.35      H
ATOM   2908  C   SER  165      152.020  32.945  73.153  1.00 57.97      H
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ATOM   2909  O   SER  165     152.276  33.809  73.989  1.00 41.07      H
ATOM   2910  N   LEU  166     152.385  33.049  71.883  1.00 64.03      H
ATOM   2911  CA  LEU  166     153.102  34.227  71.421  1.00 56.74      H
ATOM   2912  CB  LEU  166     154.493  33.841  70.923  1.00 37.44      H
ATOM   2913  CG  LEU  166     155.626  34.088  71.922  1.00 41.79      H
ATOM   2914  CD1 LEU  166     156.948  33.782  71.254  1.00 36.73      H
ATOM   2915  CD2 LEU  166     155.598  35.532  72.416  1.00 58.45      H
ATOM   2916  C   LEU  166     152.318  34.920  70.319  1.00 60.22      H
ATOM   2917  O   LEU  166     152.399  34.547  69.147  1.00 63.00      H
ATOM   2918  N   SER  167     151.547  35.928  70.708  1.00 65.96      H
ATOM   2919  CA  SER  167     150.740  36.684  69.762  1.00 64.77      H
ATOM   2920  CB  SER  167     149.255  36.347  69.946  1.00 66.65      H
ATOM   2921  OG  SER  167     148.697  37.030  71.057  1.00 54.23      H
ATOM   2922  C   SER  167     150.978  38.172  69.977  1.00 65.40      H
ATOM   2923  O   SER  167     150.141  39.009  69.637  1.00 63.94      H
ATOM   2924  N   SER  168     152.134  38.486  70.548  1.00 72.22      H
ATOM   2925  CA  SER  168     152.515  39.868  70.814  1.00 66.97      H
ATOM   2926  CB  SER  168     152.814  40.052  72.306  1.00 83.10      H
ATOM   2927  OG  SER  168     153.476  41.282  72.551  1.00 92.96      H
ATOM   2928  C   SER  168     153.754  40.212  69.997  1.00 58.05      H
ATOM   2929  O   SER  168     154.694  39.422  69.922  1.00 58.07      H
ATOM   2930  N   GLY  169     153.754  41.392  69.381  1.00 49.62      H
ATOM   2931  CA  GLY  169     154.897  41.799  68.582  1.00 43.99      H
ATOM   2932  C   GLY  169     155.088  40.916  67.366  1.00 44.05      H
ATOM   2933  O   GLY  169     156.205  40.731  66.887  1.00 49.35      H
ATOM   2934  N   VAL  170     153.991  40.366  66.862  1.00 45.75      H
ATOM   2935  CA  VAL  170     154.058  39.506  65.697  1.00 34.35      H
ATOM   2936  CB  VAL  170     153.135  38.291  65.854  1.00 29.09      H
ATOM   2937  CG1 VAL  170     153.213  37.418  64.614  1.00 23.76      H
ATOM   2938  CG2 VAL  170     153.539  37.492  67.079  1.00 30.40      H
ATOM   2939  C   VAL  170     153.660  40.269  64.445  1.00 37.22      H
ATOM   2940  O   VAL  170     152.732  41.074  64.460  1.00 35.69      H
ATOM   2941  N   HIS  171     154.383  40.017  63.364  1.00 38.69      H
ATOM   2942  CA  HIS  171     154.118  40.664  62.088  1.00 33.69      H
ATOM   2943  CB  HIS  171     155.167  41.743  61.802  1.00 38.36      H
ATOM   2944  CG  HIS  171     155.011  42.971  62.636  1.00 40.32      H
ATOM   2945  CD2 HIS  171     155.806  44.055  62.783  1.00 49.35      H
ATOM   2946  ND1 HIS  171     153.923  43.182  63.456  1.00 58.85      H
ATOM   2947  CE1 HIS  171     154.053  44.343  64.068  1.00 58.33      H
ATOM   2948  NE2 HIS  171     155.189  44.896  63.678  1.00 51.33      H
ATOM   2949  C   HIS  171     154.172  39.623  60.985  1.00 37.90      H
ATOM   2950  O   HIS  171     155.251  39.144  60.626  1.00 52.25      H
ATOM   2951  N   THR  172     153.012  39.250  60.465  1.00 36.40      H
ATOM   2952  CA  THR  172     152.974  38.289  59.379  1.00 37.99      H
ATOM   2953  CB  THR  172     151.865  37.251  59.576  1.00 30.37      H
ATOM   2954  OG1 THR  172     152.160  36.452  60.729  1.00 16.22      H
ATOM   2955  CG2 THR  172     151.760  36.351  58.356  1.00 18.72      H
ATOM   2956  C   THR  172     152.708  39.097  58.118  1.00 43.29      H
ATOM   2957  O   THR  172     151.690  39.782  58.011  1.00 42.87      H
ATOM   2958  N   PHE  173     153.635  39.031  57.172  1.00 42.03      H
ATOM   2959  CA  PHE  173     153.500  39.783  55.935  1.00 41.59      H
ATOM   2960  CB  PHE  173     154.889  40.102  55.372  1.00 69.43      H
ATOM   2961  CG  PHE  173     155.707  40.945  56.285  1.00 69.16      H
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ATOM   2962  CD1 PHE   173      155.577  42.326  56.264  1.00 69.14      H
ATOM   2963  CD2 PHE   173      156.555  40.360  57.216  1.00 71.48      H
ATOM   2964  CE1 PHE   173      156.277  43.117  57.165  1.00 47.16      H
ATOM   2965  CE2 PHE   173      157.260  41.140  58.122  1.00 46.77      H
ATOM   2966  CZ  PHE   173      157.120  42.523  58.097  1.00 50.06      H
ATOM   2967  C   PHE   173      152.651  39.103  54.870  1.00 51.94      H
ATOM   2968  O   PHE   173      152.670  37.881  54.715  1.00 45.37      H
ATOM   2969  N   PRO   174      151.873  39.901  54.128  1.00 47.56      H
ATOM   2970  CD  PRO   174      151.760  41.360  54.268  1.00 40.08      H
ATOM   2971  CA  PRO   174      151.010  39.369  53.070  1.00 39.95      H
ATOM   2972  CB  PRO   174      150.417  40.618  52.419  1.00 38.02      H
ATOM   2973  CG  PRO   174      151.234  41.778  52.945  1.00 41.70      H
ATOM   2974  C   PRO   174      151.793  38.515  52.080  1.00 34.30      H
ATOM   2975  O   PRO   174      152.926  38.844  51.719  1.00 38.61      H
ATOM   2976  N   ALA   175      151.191  37.407  51.655  1.00 33.98      H
ATOM   2977  CA  ALA   175      151.834  36.505  50.711  1.00 28.24      H
ATOM   2978  CB  ALA   175      150.947  35.303  50.455  1.00 24.04      H
ATOM   2979  C   ALA   175      152.106  37.226  49.411  1.00 43.10      H
ATOM   2980  O   ALA   175      151.420  38.182  49.064  1.00 41.83      H
ATOM   2981  N   VAL   176      153.119  36.758  48.691  1.00 47.34      H
ATOM   2982  CA  VAL   176      153.479  37.340  47.409  1.00 46.04      H
ATOM   2983  CB  VAL   176      154.660  38.335  47.546  1.00 48.76      H
ATOM   2984  CG1 VAL   176      155.822  37.686  48.280  1.00 50.38      H
ATOM   2985  CG2 VAL   176      155.100  38.809  46.167  1.00 64.07      H
ATOM   2986  C   VAL   176      153.858  36.205  46.462  1.00 36.12      H
ATOM   2987  O   VAL   176      154.544  35.263  46.857  1.00 30.73      H
ATOM   2988  N   LEU   177      153.392  36.298  45.220  1.00 48.02      H
ATOM   2989  CA  LEU   177      153.647  35.282  44.205  1.00 60.32      H
ATOM   2990  CB  LEU   177      152.686  35.467  43.036  1.00 39.51      H
ATOM   2991  CG  LEU   177      152.048  34.165  42.557  1.00 27.99      H
ATOM   2992  CD1 LEU   177      151.014  33.698  43.572  1.00 30.57      H
ATOM   2993  CD2 LEU   177      151.410  34.378  41.197  1.00 38.71      H
ATOM   2994  C   LEU   177      155.074  35.257  43.679  1.00 73.61      H
ATOM   2995  O   LEU   177      155.621  36.275  43.254  1.00 78.42      H
ATOM   2996  N   GLN   178      155.669  34.074  43.694  1.00 79.08      H
ATOM   2997  CA  GLN   178      157.031  33.895  43.227  1.00 95.82      H
ATOM   2998  CB  GLN   178      157.981  33.932  44.432  1.00 99.99      H
ATOM   2999  CG  GLN   178      159.244  33.098  44.308  1.00 99.99      H
ATOM   3000  CD  GLN   178      160.357  33.583  45.224  1.00 99.99      H
ATOM   3001  OE1 GLN   178      160.327  33.367  46.439  1.00 98.52      H
ATOM   3002  NE2 GLN   178      161.350  34.244  44.637  1.00 99.99      H
ATOM   3003  C   GLN   178      157.123  32.564  42.483  1.00 99.99      H
ATOM   3004  O   GLN   178      157.289  31.504  43.092  1.00 99.97      H
ATOM   3005  N   SER   179      156.984  32.637  41.159  1.00 96.75      H
ATOM   3006  CA  SER   179      157.047  31.465  40.289  1.00 87.63      H
ATOM   3007  CB  SER   179      158.307  30.641  40.589  1.00 93.06      H
ATOM   3008  OG  SER   179      159.098  30.472  39.425  1.00 67.71      H
ATOM   3009  C   SER   179      155.815  30.580  40.430  1.00 81.94      H
ATOM   3010  O   SER   179      155.927  29.351  40.461  1.00 85.05      H
ATOM   3011  N   ASP   180      154.649  31.217  40.517  1.00 61.79      H
ATOM   3012  CA  ASP   180      153.367  30.518  40.643  1.00 53.42      H
ATOM   3013  CB  ASP   180      153.284  29.372  39.633  1.00 63.39      H
ATOM   3014  CG  ASP   180      152.902  29.846  38.251  1.00 90.41      H
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ATOM	3015	OD1	ASP	180	151.736	30.262	38.066	1.00	95.28	H
ATOM	3016	OD2	ASP	180	153.771	29.804	37.350	1.00	91.35	H
ATOM	3017	C	ASP	180	153.036	29.975	42.030	1.00	48.83	H
ATOM	3018	O	ASP	180	151.965	29.414	42.234	1.00	32.55	H
ATOM	3019	N	LEU	181	153.955	30.120	42.976	1.00	49.73	H
ATOM	3020	CA	LEU	181	153.716	29.646	44.332	1.00	42.63	H
ATOM	3021	CB	LEU	181	154.751	28.594	44.730	1.00	51.61	H
ATOM	3022	CG	LEU	181	154.817	27.335	43.865	1.00	45.19	H
ATOM	3023	CD1	LEU	181	155.788	26.358	44.503	1.00	36.88	H
ATOM	3024	CD2	LEU	181	153.429	26.712	43.723	1.00	49.90	H
ATOM	3025	C	LEU	181	153.811	30.840	45.265	1.00	36.09	H
ATOM	3026	O	LEU	181	154.401	31.859	44.914	1.00	47.48	H
ATOM	3027	N	TYR	182	153.235	30.711	46.454	1.00	34.48	H
ATOM	3028	CA	TYR	182	153.254	31.803	47.410	1.00	34.99	H
ATOM	3029	CB	TYR	182	151.965	31.824	48.221	1.00	43.15	H
ATOM	3030	CG	TYR	182	150.768	32.266	47.431	1.00	26.23	H
ATOM	3031	CD1	TYR	182	150.514	33.621	47.219	1.00	24.46	H
ATOM	3032	CE1	TYR	182	149.437	34.034	46.455	1.00	26.76	H
ATOM	3033	CD2	TYR	182	149.908	31.332	46.864	1.00	28.50	H
ATOM	3034	CE2	TYR	182	148.827	31.733	46.097	1.00	40.52	H
ATOM	3035	CZ	TYR	182	148.596	33.085	45.893	1.00	31.63	H
ATOM	3036	OH	TYR	182	147.538	33.480	45.108	1.00	52.38	H
ATOM	3037	C	TYR	182	154.410	31.694	48.361	1.00	34.67	H
ATOM	3038	O	TYR	182	154.902	30.604	48.642	1.00	30.57	H
ATOM	3039	N	THR	183	154.842	32.844	48.860	1.00	46.64	H
ATOM	3040	CA	THR	183	155.915	32.914	49.838	1.00	32.69	H
ATOM	3041	CB	THR	183	157.250	33.348	49.232	1.00	32.26	H
ATOM	3042	OG1	THR	183	157.678	32.396	48.250	1.00	39.58	H
ATOM	3043	CG2	THR	183	158.288	33.442	50.318	1.00	33.99	H
ATOM	3044	C	THR	183	155.483	33.981	50.823	1.00	28.00	H
ATOM	3045	O	THR	183	154.927	35.009	50.440	1.00	38.20	H
ATOM	3046	N	LEU	184	155.737	33.743	52.097	1.00	27.54	H
ATOM	3047	CA	LEU	184	155.353	34.696	53.114	1.00	30.19	H
ATOM	3048	CB	LEU	184	153.926	34.380	53.559	1.00	30.95	H
ATOM	3049	CG	LEU	184	153.483	34.617	54.996	1.00	46.42	H
ATOM	3050	CD1	LEU	184	151.969	34.814	55.016	1.00	25.32	H
ATOM	3051	CD2	LEU	184	153.891	33.439	55.867	1.00	45.00	H
ATOM	3052	C	LEU	184	156.337	34.598	54.271	1.00	30.88	H
ATOM	3053	O	LEU	184	157.075	33.623	54.383	1.00	17.03	H
ATOM	3054	N	SER	185	156.370	35.613	55.122	1.00	29.51	H
ATOM	3055	CA	SER	185	157.278	35.599	56.252	1.00	24.01	H
ATOM	3056	CB	SER	185	158.573	36.350	55.914	1.00	21.45	H
ATOM	3057	OG	SER	185	158.354	37.749	55.844	1.00	46.01	H
ATOM	3058	C	SER	185	156.610	36.235	57.449	1.00	28.20	H
ATOM	3059	O	SER	185	155.828	37.173	57.312	1.00	26.88	H
ATOM	3060	N	SER	186	156.917	35.710	58.625	1.00	38.58	H
ATOM	3061	CA	SER	186	156.354	36.229	59.853	1.00	34.31	H
ATOM	3062	CB	SER	186	155.389	35.210	60.463	1.00	37.09	H
ATOM	3063	OG	SER	186	154.862	35.685	61.689	1.00	44.43	H
ATOM	3064	C	SER	186	157.487	36.510	60.822	1.00	25.01	H
ATOM	3065	O	SER	186	158.356	35.663	61.036	1.00	38.29	H
ATOM	3066	N	SER	187	157.491	37.703	61.395	1.00	15.70	H
ATOM	3067	CA	SER	187	158.524	38.066	62.348	1.00	25.23	H

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ATOM   3068  CB  SER   187      159.100  39.440  62.008  1.00 18.98      H
ATOM   3069  OG  SER   187      158.187  40.466  62.346  1.00 36.58      H
ATOM   3070  C   SER   187      157.905  38.092  63.739  1.00 27.63      H
ATOM   3071  O   SER   187      156.692  38.240  63.882  1.00 26.02      H
ATOM   3072  N   VAL   188      158.739  37.926  64.762  1.00 31.12      H
ATOM   3073  CA  VAL   188      158.266  37.950  66.141  1.00 31.94      H
ATOM   3074  CB  VAL   188      157.996  36.524  66.681  1.00 32.97      H
ATOM   3075  CG1 VAL   188      159.298  35.776  66.878  1.00 21.32      H
ATOM   3076  CG2 VAL   188      157.221  36.606  67.987  1.00 48.09      H
ATOM   3077  C   VAL   188      159.284  38.646  67.030  1.00 29.00      H
ATOM   3078  O   VAL   188      160.469  38.322  67.016  1.00 18.81      H
ATOM   3079  N   THR   189      158.811  39.618  67.799  1.00 43.09      H
ATOM   3080  CA  THR   189      159.664  40.385  68.691  1.00 52.62      H
ATOM   3081  CB  THR   189      159.381  41.890  68.535  1.00 55.64      H
ATOM   3082  OG1 THR   189      159.915  42.346  67.288  1.00 72.06      H
ATOM   3083  CG2 THR   189      160.006  42.678  69.676  1.00 47.82      H
ATOM   3084  C   THR   189      159.450  39.981  70.147  1.00 47.05      H
ATOM   3085  O   THR   189      158.313  39.914  70.622  1.00 51.99      H
ATOM   3086  N   VAL   190      160.547  39.715  70.846  1.00 33.42      H
ATOM   3087  CA  VAL   190      160.489  39.327  72.251  1.00 49.20      H
ATOM   3088  CB  VAL   190      160.501  37.795  72.408  1.00 46.79      H
ATOM   3089  CG1 VAL   190      159.222  37.205  71.839  1.00 24.58      H
ATOM   3090  CG2 VAL   190      161.717  37.217  71.715  1.00 27.47      H
ATOM   3091  C   VAL   190      161.670  39.893  73.037  1.00 57.65      H
ATOM   3092  O   VAL   190      162.797  39.935  72.538  1.00 35.32      H
ATOM   3093  N   PRO   191      161.419  40.347  74.277  1.00 74.09      H
ATOM   3094  CD  PRO   191      160.096  40.363  74.931  1.00 85.05      H
ATOM   3095  CA  PRO   191      162.461  40.912  75.142  1.00 73.28      H
ATOM   3096  CB  PRO   191      161.769  41.033  76.496  1.00 85.43      H
ATOM   3097  CG  PRO   191      160.328  41.206  76.155  1.00 90.65      H
ATOM   3098  C   PRO   191      163.708  40.031  75.207  1.00 69.24      H
ATOM   3099  O   PRO   191      163.618  38.814  75.392  1.00 45.94      H
ATOM   3100  N   SER   192      164.871  40.663  75.063  1.00 75.06      H
ATOM   3101  CA  SER   192      166.146  39.952  75.082  1.00 71.45      H
ATOM   3102  CB  SER   192      167.311  40.955  75.103  1.00 59.57      H
ATOM   3103  OG  SER   192      167.154  41.923  76.129  1.00 83.36      H
ATOM   3104  C   SER   192      166.291  38.977  76.248  1.00 74.48      H
ATOM   3105  O   SER   192      167.095  38.051  76.184  1.00 78.55      H
ATOM   3106  N   SER   193      165.498  39.169  77.297  1.00 78.60      H
ATOM   3107  CA  SER   193      165.574  38.315  78.476  1.00 75.62      H
ATOM   3108  CB  SER   193      164.901  39.019  79.661  1.00 88.02      H
ATOM   3109  OG  SER   193      163.490  39.027  79.525  1.00 99.66      H
ATOM   3110  C   SER   193      165.013  36.898  78.345  1.00 67.52      H
ATOM   3111  O   SER   193      165.430  35.998  79.073  1.00 55.75      H
ATOM   3112  N   THR   194      164.083  36.684  77.418  1.00 72.49      H
ATOM   3113  CA  THR   194      163.464  35.365  77.259  1.00 71.00      H
ATOM   3114  CB  THR   194      161.967  35.507  76.936  1.00 85.22      H
ATOM   3115  OG1 THR   194      161.795  36.425  75.846  1.00 87.88      H
ATOM   3116  CG2 THR   194      161.213  36.023  78.154  1.00 86.98      H
ATOM   3117  C   THR   194      164.082  34.432  76.219  1.00 51.89      H
ATOM   3118  O   THR   194      163.726  33.253  76.150  1.00 40.90      H
ATOM   3119  N   TRP   195      164.996  34.957  75.408  1.00 50.33      H
ATOM   3120  CA  TRP   195      165.654  34.154  74.381  1.00 48.60      H
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ATOM   3121  CB  TRP   195     165.109  34.515  72.990  1.00 43.12      H
ATOM   3122  CG  TRP   195     165.338  33.444  71.945  1.00 50.92      H
ATOM   3123  CD2 TRP   195     166.332  33.451  70.907  1.00 56.48      H
ATOM   3124  CE2 TRP   195     166.199  32.235  70.192  1.00 47.66      H
ATOM   3125  CE3 TRP   195     167.320  34.365  70.513  1.00 53.35      H
ATOM   3126  CD1 TRP   195     164.664  32.259  71.817  1.00 57.45      H
ATOM   3127  NE1 TRP   195     165.175  31.528  70.766  1.00 58.35      H
ATOM   3128  CZ2 TRP   195     167.019  31.911  69.104  1.00 45.39      H
ATOM   3129  CZ3 TRP   195     168.136  34.040  69.430  1.00 48.84      H
ATOM   3130  CH2 TRP   195     167.979  32.821  68.741  1.00 37.86      H
ATOM   3131  C   TRP   195     167.164  34.383  74.420  1.00 55.91      H
ATOM   3132  O   TRP   195     167.620  35.492  74.702  1.00 67.87      H
ATOM   3133  N   PRO   196     167.960  33.334  74.143  1.00 55.52      H
ATOM   3134  CD  PRO   196     169.426  33.449  74.122  1.00 48.86      H
ATOM   3135  CA  PRO   196     167.526  31.972  73.804  1.00 46.54      H
ATOM   3136  CB  PRO   196     168.764  31.339  73.154  1.00 39.17      H
ATOM   3137  CG  PRO   196     169.812  32.444  73.087  1.00 48.88      H
ATOM   3138  C   PRO   196     167.047  31.179  75.016  1.00 48.13      H
ATOM   3139  O   PRO   196     166.920  29.951  74.958  1.00 51.32      H
ATOM   3140  N   SER   197     166.789  31.891  76.109  1.00 63.32      H
ATOM   3141  CA  SER   197     166.315  31.282  77.343  1.00 62.46      H
ATOM   3142  CB  SER   197     165.718  32.353  78.255  1.00 69.33      H
ATOM   3143  OG  SER   197     166.324  32.329  79.533  1.00 75.74      H
ATOM   3144  C   SER   197     165.261  30.225  77.029  1.00 55.85      H
ATOM   3145  O   SER   197     165.557  29.029  76.979  1.00 63.63      H
ATOM   3146  N   GLU   198     164.032  30.680  76.809  1.00 50.23      H
ATOM   3147  CA  GLU   198     162.925  29.787  76.494  1.00 57.31      H
ATOM   3148  CB  GLU   198     161.605  30.416  76.945  1.00 72.95      H
ATOM   3149  CG  GLU   198     161.645  30.972  78.360  1.00 75.15      H
ATOM   3150  CD  GLU   198     160.646  32.093  78.584  1.00 85.11      H
ATOM   3151  OE1 GLU   198     159.817  32.341  77.680  1.00 99.04      H
ATOM   3152  OE2 GLU   198     160.689  32.725  79.664  1.00 77.93      H
ATOM   3153  C   GLU   198     162.889  29.516  74.995  1.00 56.54      H
ATOM   3154  O   GLU   198     163.247  30.384  74.201  1.00 63.21      H
ATOM   3155  N   THR   199     162.462  28.314  74.614  1.00 54.93      H
ATOM   3156  CA  THR   199     162.392  27.937  73.203  1.00 53.51      H
ATOM   3157  CB  THR   199     162.304  26.400  73.031  1.00 61.18      H
ATOM   3158  OG1 THR   199     161.128  25.903  73.681  1.00 51.25      H
ATOM   3159  CG2 THR   199     163.536  25.727  73.623  1.00 78.07      H
ATOM   3160  C   THR   199     161.205  28.583  72.485  1.00 59.63      H
ATOM   3161  O   THR   199     160.120  28.730  73.054  1.00 59.98      H
ATOM   3162  N   VAL   200     161.429  28.966  71.228  1.00 57.25      H
ATOM   3163  CA  VAL   200     160.407  29.603  70.405  1.00 51.96      H
ATOM   3164  CB  VAL   200     160.815  31.039  70.035  1.00 33.42      H
ATOM   3165  CG1 VAL   200     159.951  31.540  68.899  1.00 17.75      H
ATOM   3166  CG2 VAL   200     160.680  31.944  71.239  1.00 31.97      H
ATOM   3167  C   VAL   200     160.195  28.832  69.112  1.00 51.65      H
ATOM   3168  O   VAL   200     161.136  28.613  68.353  1.00 62.16      H
ATOM   3169  N   THR   201     158.955  28.427  68.862  1.00 39.44      H
ATOM   3170  CA  THR   201     158.631  27.684  67.648  1.00 32.31      H
ATOM   3171  CB  THR   201     158.116  26.267  67.969  1.00 41.49      H
ATOM   3172  OG1 THR   201     159.042  25.602  68.831  1.00 51.63      H
ATOM   3173  CG2 THR   201     157.949  25.458  66.688  1.00 39.87      H
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ATOM	3174	C	THR	201	157.545	28.399	66.860	1.00	26.58	H
ATOM	3175	O	THR	201	156.682	29.055	67.438	1.00	25.18	H
ATOM	3176	N	CYS	202	157.593	28.279	65.538	1.00	22.39	H
ATOM	3177	CA	CYS	202	156.582	28.902	64.699	1.00	25.43	H
ATOM	3178	C	CYS	202	155.765	27.777	64.064	1.00	25.96	H
ATOM	3179	O	CYS	202	156.324	26.826	63.522	1.00	34.22	H
ATOM	3180	CB	CYS	202	157.243	29.820	63.649	1.00	49.34	H
ATOM	3181	SG	CYS	202	157.564	29.150	61.983	1.00	74.97	H
ATOM	3182	N	ASN	203	154.441	27.871	64.172	1.00	24.52	H
ATOM	3183	CA	ASN	203	153.554	26.842	63.628	1.00	29.46	H
ATOM	3184	CB	ASN	203	152.539	26.387	64.686	1.00	36.69	H
ATOM	3185	CG	ASN	203	152.926	26.807	66.099	1.00	44.66	H
ATOM	3186	OD1	ASN	203	152.586	27.904	66.552	1.00	28.02	H
ATOM	3187	ND2	ASN	203	153.629	25.926	66.805	1.00	33.32	H
ATOM	3188	C	ASN	203	152.800	27.293	62.389	1.00	18.74	H
ATOM	3189	O	ASN	203	151.964	28.196	62.447	1.00	38.03	H
ATOM	3190	N	VAL	204	153.099	26.646	61.270	1.00	23.45	H
ATOM	3191	CA	VAL	204	152.451	26.957	60.006	1.00	38.87	H
ATOM	3192	CB	VAL	204	153.473	27.049	58.853	1.00	39.50	H
ATOM	3193	CG1	VAL	204	152.795	27.575	57.599	1.00	52.52	H
ATOM	3194	CG2	VAL	204	154.624	27.944	59.254	1.00	29.99	H
ATOM	3195	C	VAL	204	151.461	25.854	59.676	1.00	41.89	H
ATOM	3196	O	VAL	204	151.733	24.682	59.919	1.00	46.77	H
ATOM	3197	N	ALA	205	150.312	26.236	59.126	1.00	41.52	H
ATOM	3198	CA	ALA	205	149.285	25.273	58.751	1.00	32.14	H
ATOM	3199	CB	ALA	205	148.156	25.281	59.777	1.00	44.74	H
ATOM	3200	C	ALA	205	148.749	25.614	57.365	1.00	28.16	H
ATOM	3201	O	ALA	205	148.349	26.750	57.104	1.00	23.06	H
ATOM	3202	N	HIS	206	148.756	24.629	56.474	1.00	38.89	H
ATOM	3203	CA	HIS	206	148.267	24.825	55.121	1.00	31.01	H
ATOM	3204	CB	HIS	206	149.357	24.497	54.112	1.00	34.08	H
ATOM	3205	CG	HIS	206	149.025	24.909	52.715	1.00	25.51	H
ATOM	3206	CD2	HIS	206	148.521	26.065	52.227	1.00	33.37	H
ATOM	3207	ND1	HIS	206	149.193	24.073	51.635	1.00	28.36	H
ATOM	3208	CE1	HIS	206	148.807	24.698	50.535	1.00	30.36	H
ATOM	3209	NE2	HIS	206	148.393	25.907	50.868	1.00	29.53	H
ATOM	3210	C	HIS	206	147.061	23.930	54.876	1.00	38.48	H
ATOM	3211	O	HIS	206	147.198	22.819	54.371	1.00	42.18	H
ATOM	3212	N	PRO	207	145.856	24.417	55.228	1.00	46.11	H
ATOM	3213	CD	PRO	207	145.636	25.758	55.802	1.00	59.24	H
ATOM	3214	CA	PRO	207	144.597	23.684	55.065	1.00	49.09	H
ATOM	3215	CB	PRO	207	143.538	24.780	55.138	1.00	55.68	H
ATOM	3216	CG	PRO	207	144.146	25.814	56.018	1.00	65.42	H
ATOM	3217	C	PRO	207	144.504	22.890	53.769	1.00	60.16	H
ATOM	3218	O	PRO	207	144.293	21.680	53.787	1.00	51.48	H
ATOM	3219	N	ALA	208	144.664	23.577	52.646	1.00	56.11	H
ATOM	3220	CA	ALA	208	144.584	22.933	51.342	1.00	41.51	H
ATOM	3221	CB	ALA	208	145.043	23.899	50.261	1.00	34.52	H
ATOM	3222	C	ALA	208	145.397	21.638	51.269	1.00	43.41	H
ATOM	3223	O	ALA	208	144.983	20.676	50.615	1.00	51.37	H
ATOM	3224	N	SER	209	146.550	21.615	51.933	1.00	47.62	H
ATOM	3225	CA	SER	209	147.396	20.424	51.923	1.00	48.72	H
ATOM	3226	CB	SER	209	148.852	20.811	51.634	1.00	44.67	H

ATOM	3227	OG	SER	209	149.387	21.642	52.650	1.00	55.80	H
ATOM	3228	C	SER	209	147.304	19.643	53.236	1.00	53.29	H
ATOM	3229	O	SER	209	147.973	18.624	53.411	1.00	52.35	H
ATOM	3230	N	SER	210	146.462	20.119	54.148	1.00	71.17	H
ATOM	3231	CA	SER	210	146.269	19.475	55.444	1.00	82.90	H
ATOM	3232	CB	SER	210	145.509	18.158	55.277	1.00	90.95	H
ATOM	3233	OG	SER	210	144.137	18.333	55.578	1.00	100.00	H
ATOM	3234	C	SER	210	147.579	19.213	56.169	1.00	79.59	H
ATOM	3235	O	SER	210	147.702	18.234	56.908	1.00	80.94	H
ATOM	3236	N	THR	211	148.555	20.088	55.950	1.00	73.59	H
ATOM	3237	CA	THR	211	149.854	19.964	56.594	1.00	75.14	H
ATOM	3238	CB	THR	211	151.027	20.111	55.599	1.00	76.28	H
ATOM	3239	OG1	THR	211	150.990	21.414	55.008	1.00	73.09	H
ATOM	3240	CG2	THR	211	150.950	19.062	54.510	1.00	89.67	H
ATOM	3241	C	THR	211	150.024	21.051	57.643	1.00	74.45	H
ATOM	3242	O	THR	211	149.536	22.172	57.491	1.00	76.65	H
ATOM	3243	N	LYS	212	150.711	20.699	58.722	1.00	69.16	H
ATOM	3244	CA	LYS	212	150.988	21.645	59.783	1.00	61.67	H
ATOM	3245	CB	LYS	212	150.041	21.450	60.967	1.00	73.38	H
ATOM	3246	CG	LYS	212	150.718	21.612	62.317	1.00	89.85	H
ATOM	3247	CD	LYS	212	150.006	22.614	63.192	1.00	99.99	H
ATOM	3248	CE	LYS	212	150.452	22.449	64.637	1.00	97.52	H
ATOM	3249	NZ	LYS	212	150.308	23.707	65.419	1.00	95.76	H
ATOM	3250	C	LYS	212	152.413	21.344	60.198	1.00	51.18	H
ATOM	3251	O	LYS	212	152.730	20.222	60.594	1.00	46.57	H
ATOM	3252	N	VAL	213	153.275	22.349	60.081	1.00	47.52	H
ATOM	3253	CA	VAL	213	154.672	22.201	60.434	1.00	33.06	H
ATOM	3254	CB	VAL	213	155.593	22.651	59.282	1.00	35.68	H
ATOM	3255	CG1	VAL	213	157.002	22.136	59.511	1.00	51.97	H
ATOM	3256	CG2	VAL	213	155.047	22.154	57.948	1.00	53.21	H
ATOM	3257	C	VAL	213	155.011	23.028	61.661	1.00	30.06	H
ATOM	3258	O	VAL	213	154.324	23.996	61.991	1.00	34.34	H
ATOM	3259	N	ASP	214	156.071	22.625	62.343	1.00	35.26	H
ATOM	3260	CA	ASP	214	156.541	23.325	63.523	1.00	39.19	H
ATOM	3261	CB	ASP	214	156.228	22.526	64.791	1.00	58.41	H
ATOM	3262	CG	ASP	214	154.791	22.709	65.259	1.00	63.54	H
ATOM	3263	OD1	ASP	214	154.397	23.857	65.553	1.00	65.10	H
ATOM	3264	OD2	ASP	214	154.059	21.699	65.336	1.00	80.45	H
ATOM	3265	C	ASP	214	158.046	23.454	63.342	1.00	37.64	H
ATOM	3266	O	ASP	214	158.725	22.489	62.983	1.00	41.00	H
ATOM	3267	N	LYS	215	158.564	24.652	63.564	1.00	34.85	H
ATOM	3268	CA	LYS	215	159.985	24.877	63.410	1.00	35.83	H
ATOM	3269	CB	LYS	215	160.261	25.637	62.112	1.00	37.75	H
ATOM	3270	CG	LYS	215	161.248	24.948	61.191	1.00	59.89	H
ATOM	3271	CD	LYS	215	160.536	23.992	60.251	1.00	59.31	H
ATOM	3272	CE	LYS	215	161.386	22.766	59.964	1.00	53.98	H
ATOM	3273	NZ	LYS	215	160.573	21.613	59.475	1.00	65.45	H
ATOM	3274	C	LYS	215	160.515	25.659	64.588	1.00	38.73	H
ATOM	3275	O	LYS	215	160.030	26.745	64.904	1.00	53.68	H
ATOM	3276	N	LYS	216	161.511	25.084	65.244	1.00	48.31	H
ATOM	3277	CA	LYS	216	162.141	25.714	66.389	1.00	47.35	H
ATOM	3278	CB	LYS	216	162.649	24.641	67.357	1.00	48.55	H
ATOM	3279	CG	LYS	216	162.043	23.256	67.119	1.00	74.84	H

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ATOM   3280  CD  LYS   216     162.861  22.156  67.793  1.00 85.40      H
ATOM   3281  CE  LYS   216     162.592  22.085  69.296  1.00 94.97      H
ATOM   3282  NZ  LYS   216     162.133  20.733  69.738  1.00 92.19      H
ATOM   3283  C   LYS   216     163.305  26.543  65.860  1.00 46.24      H
ATOM   3284  O   LYS   216     163.898  26.203  64.838  1.00 34.41      H
ATOM   3285  N   ILE   217     163.622  27.637  66.541  1.00 41.02      H
ATOM   3286  CA  ILE   217     164.719  28.497  66.116  1.00 44.97      H
ATOM   3287  CB  ILE   217     164.273  29.978  66.046  1.00 41.86      H
ATOM   3288  CG2 ILE   217     165.094  30.716  64.991  1.00 44.48      H
ATOM   3289  CG1 ILE   217     162.768  30.063  65.749  1.00 33.66      H
ATOM   3290  CD1 ILE   217     162.407  30.038  64.270  1.00 17.95      H
ATOM   3291  C   ILE   217     165.890  28.363  67.094  1.00 47.47      H
ATOM   3292  O   ILE   217     165.690  28.400  68.310  1.00 43.27      H
ATOM   3293  N   VAL   218     167.103  28.219  66.559  1.00 50.40      H
ATOM   3294  CA  VAL   218     168.301  28.054  67.394  1.00 50.95      H
ATOM   3295  CB  VAL   218     169.003  26.705  67.084  1.00 57.08      H
ATOM   3296  CG1 VAL   218     167.974  25.686  66.599  1.00 55.44      H
ATOM   3297  CG2 VAL   218     170.105  26.903  66.037  1.00 73.39      H
ATOM   3298  C   VAL   218     169.344  29.175  67.289  1.00 41.93      H
ATOM   3299  O   VAL   218     170.001  29.458  68.317  1.00 46.19      H
ATOM   3300  OT  VAL   218     170.011  29.390  69.119  1.00 52.14      H
ATOM   3301  CB  LYS     2      95.854  32.588  47.685  1.00 42.79      C
ATOM   3302  CG  LYS     2      95.825  31.435  46.699  1.00 53.80      C
ATOM   3303  CD  LYS     2      94.407  30.925  46.486  1.00 62.43      C
ATOM   3304  CE  LYS     2      94.373  29.740  45.531  1.00 62.95      C
ATOM   3305  NZ  LYS     2      94.065  28.460  46.232  1.00 60.28      C
ATOM   3306  C   LYS     2      94.693  33.099  49.840  1.00 46.91      C
ATOM   3307  O   LYS     2      93.606  32.673  50.239  1.00 58.66      C
ATOM   3308  N   LYS     2      95.259  30.740  49.234  1.00 34.71      C
ATOM   3309  CA  LYS     2      95.690  32.169  49.150  1.00 47.34      C
ATOM   3310  N   ILE     3      95.072  34.368  49.975  1.00 39.77      C
ATOM   3311  CA  ILE     3      94.226  35.372  50.621  1.00 41.61      C
ATOM   3312  CB  ILE     3      95.062  36.456  51.331  1.00 43.12      C
ATOM   3313  CG2 ILE     3      94.142  37.421  52.074  1.00 41.52      C
ATOM   3314  CG1 ILE     3      96.056  35.818  52.301  1.00 48.11      C
ATOM   3315  CD1 ILE     3      97.282  36.672  52.556  1.00 29.73      C
ATOM   3316  C   ILE     3      93.346  36.101  49.623  1.00 38.09      C
ATOM   3317  O   ILE     3      93.645  36.147  48.437  1.00 41.06      C
ATOM   3318  N   LEU     4      92.266  36.686  50.124  1.00 41.63      C
ATOM   3319  CA  LEU     4      91.349  37.439  49.287  1.00 47.21      C
ATOM   3320  CB  LEU     4      89.906  37.026  49.581  1.00 47.90      C
ATOM   3321  CG  LEU     4      89.389  35.782  48.852  1.00 49.25      C
ATOM   3322  CD1 LEU     4      89.552  35.970  47.351  1.00 37.24      C
ATOM   3323  CD2 LEU     4      90.138  34.543  49.324  1.00 54.80      C
ATOM   3324  C   LEU     4      91.536  38.927  49.569  1.00 48.08      C
ATOM   3325  O   LEU     4      91.868  39.322  50.695  1.00 31.46      C
ATOM   3326  N   VAL     5      91.326  39.743  48.538  1.00 43.17      C
ATOM   3327  CA  VAL     5      91.469  41.190  48.660  1.00 33.62      C
ATOM   3328  CB  VAL     5      92.806  41.673  48.047  1.00 32.71      C
ATOM   3329  CG1 VAL     5      93.315  42.880  48.803  1.00 22.52      C
ATOM   3330  CG2 VAL     5      93.836  40.559  48.081  1.00 29.21      C
ATOM   3331  C   VAL     5      90.325  41.911  47.945  1.00 36.98      C
ATOM   3332  O   VAL     5      90.028  41.628  46.788  1.00 50.54      C
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ATOM   3333  N   LYS     6      89.689  42.844  48.640  1.00 39.70      C
ATOM   3334  CA  LYS     6      88.593  43.622  48.068  1.00 41.54      C
ATOM   3335  CB  LYS     6      87.299  43.378  48.857  1.00 38.28      C
ATOM   3336  CG  LYS     6      86.443  42.233  48.341  1.00 48.43      C
ATOM   3337  CD  LYS     6      85.343  41.841  49.339  1.00 58.62      C
ATOM   3338  CE  LYS     6      85.905  41.158  50.593  1.00 47.34      C
ATOM   3339  NZ  LYS     6      86.645  39.893  50.281  1.00 51.47      C
ATOM   3340  C   LYS     6      88.957  45.108  48.147  1.00 32.95      C
ATOM   3341  O   LYS     6      89.265  45.614  49.222  1.00 43.88      C
ATOM   3342  N   GLN     7      88.926  45.805  47.021  1.00 30.15      C
ATOM   3343  CA  GLN     7      89.258  47.224  47.022  1.00 39.07      C
ATOM   3344  CB  GLN     7      90.631  47.449  46.395  1.00 44.76      C
ATOM   3345  CG  GLN     7      91.355  46.178  46.002  1.00 48.85      C
ATOM   3346  CD  GLN     7      92.745  46.462  45.467  1.00 53.95      C
ATOM   3347  OE1 GLN     7      93.575  45.560  45.334  1.00 50.12      C
ATOM   3348  NE2 GLN     7      93.007  47.730  45.155  1.00 35.66      C
ATOM   3349  C   GLN     7      88.230  48.035  46.262  1.00 36.89      C
ATOM   3350  O   GLN     7      87.567  47.514  45.370  1.00 42.41      C
ATOM   3351  N   SER     8      88.095  49.307  46.623  1.00 34.89      C
ATOM   3352  CA  SER     8      87.148  50.178  45.940  1.00 33.64      C
ATOM   3353  CB  SER     8      87.247  51.613  46.475  1.00 39.10      C
ATOM   3354  OG  SER     8      86.259  51.882  47.465  1.00 33.65      C
ATOM   3355  C   SER     8      87.564  50.141  44.481  1.00 36.57      C
ATOM   3356  O   SER     8      88.751  50.012  44.180  1.00 34.54      C
ATOM   3357  N   PRO     9      86.596  50.239  43.553  1.00 45.61      C
ATOM   3358  CD  PRO     9      85.146  50.390  43.755  1.00 42.54      C
ATOM   3359  CA  PRO     9      86.946  50.207  42.128  1.00 42.76      C
ATOM   3360  CB  PRO     9      85.594  50.325  41.411  1.00 35.11      C
ATOM   3361  CG  PRO     9      84.577  49.955  42.428  1.00 29.77      C
ATOM   3362  C   PRO     9      87.879  51.370  41.813  1.00 45.27      C
ATOM   3363  O   PRO     9      88.929  51.194  41.190  1.00 49.59      C
ATOM   3364  N   MET    10      87.486  52.561  42.254  1.00 34.14      C
ATOM   3365  CA  MET    10      88.292  53.749  42.041  1.00 36.35      C
ATOM   3366  CB  MET    10      87.975  54.374  40.674  1.00 51.67      C
ATOM   3367  CG  MET    10      87.958  55.908  40.628  1.00 45.29      C
ATOM   3368  SD  MET    10      86.852  56.596  39.357  1.00 41.23      C
ATOM   3369  CE  MET    10      88.067  57.323  38.239  1.00 36.20      C
ATOM   3370  C   MET    10      88.031  54.730  43.172  1.00 31.46      C
ATOM   3371  O   MET    10      87.032  54.629  43.882  1.00 22.69      C
ATOM   3372  N   LEU    11      88.962  55.661  43.344  1.00 34.82      C
ATOM   3373  CA  LEU    11      88.890  56.669  44.385  1.00 23.35      C
ATOM   3374  CB  LEU    11      89.826  56.264  45.530  1.00 20.95      C
ATOM   3375  CG  LEU    11      89.592  54.804  45.946  1.00 18.02      C
ATOM   3376  CD1 LEU    11      90.765  54.235  46.696  1.00  5.04      C
ATOM   3377  CD2 LEU    11      88.339  54.745  46.785  1.00 31.87      C
ATOM   3378  C   LEU    11      89.306  58.008  43.789  1.00 22.25      C
ATOM   3379  O   LEU    11      90.294  58.093  43.061  1.00 23.22      C
ATOM   3380  N   VAL    12      88.540  59.051  44.075  1.00 23.39      C
ATOM   3381  CA  VAL    12      88.871  60.365  43.551  1.00 25.58      C
ATOM   3382  CB  VAL    12      87.610  61.166  43.174  1.00 37.83      C
ATOM   3383  CG1 VAL    12      88.008  62.509  42.585  1.00 20.17      C
ATOM   3384  CG2 VAL    12      86.771  60.387  42.173  1.00 25.83      C
ATOM   3385  C   VAL    12      89.655  61.133  44.603  1.00 30.45      C
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ATOM   3386  O   VAL   12      89.106  61.605  45.597  1.00 47.50      C
ATOM   3387  N   ALA   13      90.955  61.246  44.379  1.00 37.89      C
ATOM   3388  CA  ALA   13      91.820  61.943  45.307  1.00 26.16      C
ATOM   3389  CB  ALA   13      93.203  62.091  44.706  1.00 30.65      C
ATOM   3390  C   ALA   13      91.241  63.309  45.615  1.00 33.79      C
ATOM   3391  O   ALA   13      90.816  64.028  44.711  1.00 39.57      C
ATOM   3392  N   TYR   14      91.206  63.657  46.895  1.00 39.35      C
ATOM   3393  CA  TYR   14      90.711  64.959  47.306  1.00 37.04      C
ATOM   3394  CB  TYR   14      89.660  64.835  48.410  1.00 33.79      C
ATOM   3395  CG  TYR   14      89.555  66.110  49.213  1.00 48.57      C
ATOM   3396  CD1 TYR   14      90.182  66.233  50.458  1.00 50.52      C
ATOM   3397  CE1 TYR   14      90.178  67.444  51.148  1.00 54.90      C
ATOM   3398  CD2 TYR   14      88.913  67.231  48.685  1.00 44.13      C
ATOM   3399  CE2 TYR   14      88.904  68.441  49.364  1.00 49.92      C
ATOM   3400  CZ  TYR   14      89.538  68.545  50.590  1.00 58.83      C
ATOM   3401  OH  TYR   14      89.536  69.761  51.240  1.00 69.05      C
ATOM   3402  C   TYR   14      91.884  65.765  47.846  1.00 39.91      C
ATOM   3403  O   TYR   14      92.626  65.283  48.703  1.00 36.85      C
ATOM   3404  N   ASP   15      92.041  66.992  47.359  1.00 34.60      C
ATOM   3405  CA  ASP   15      93.131  67.838  47.820  1.00 35.97      C
ATOM   3406  CB  ASP   15      92.958  68.141  49.307  1.00 54.21      C
ATOM   3407  CG  ASP   15      92.605  69.588  49.573  1.00 74.11      C
ATOM   3408  OD1 ASP   15      92.300  70.322  48.604  1.00 77.84      C
ATOM   3409  OD2 ASP   15      92.634  69.985  50.758  1.00 75.11      C
ATOM   3410  C   ASP   15      94.448  67.112  47.603  1.00 33.47      C
ATOM   3411  O   ASP   15      95.389  67.265  48.380  1.00 34.49      C
ATOM   3412  N   ASN   16      94.499  66.309  46.543  1.00 44.74      C
ATOM   3413  CA  ASN   16      95.683  65.534  46.196  1.00 48.87      C
ATOM   3414  CB  ASN   16      96.898  66.457  46.053  1.00 62.07      C
ATOM   3415  CG  ASN   16      96.840  67.292  44.793  1.00 64.94      C
ATOM   3416  OD1 ASN   16      96.213  68.355  44.760  1.00 66.06      C
ATOM   3417  ND2 ASN   16      97.497  66.816  43.742  1.00 73.29      C
ATOM   3418  C   ASN   16      95.983  64.449  47.225  1.00 48.29      C
ATOM   3419  O   ASN   16      97.148  64.096  47.451  1.00 38.81      C
ATOM   3420  N   ALA   17      94.923  63.923  47.835  1.00 34.08      C
ATOM   3421  CA  ALA   17      95.055  62.867  48.840  1.00 29.57      C
ATOM   3422  CB  ALA   17      94.996  63.459  50.237  1.00 33.14      C
ATOM   3423  C   ALA   17      93.955  61.832  48.667  1.00 29.96      C
ATOM   3424  O   ALA   17      92.931  62.107  48.049  1.00 32.16      C
ATOM   3425  N   VAL   18      94.169  60.642  49.213  1.00 28.09      C
ATOM   3426  CA  VAL   18      93.188  59.568  49.111  1.00 30.54      C
ATOM   3427  CB  VAL   18      93.339  58.824  47.767  1.00 15.07      C
ATOM   3428  CG1 VAL   18      94.517  57.889  47.829  1.00 23.83      C
ATOM   3429  CG2 VAL   18      92.086  58.054  47.448  1.00 16.29      C
ATOM   3430  C   VAL   18      93.356  58.575  50.266  1.00 33.43      C
ATOM   3431  O   VAL   18      94.314  58.660  51.029  1.00 28.92      C
ATOM   3432  N   ASN   19      92.419  57.643  50.398  1.00 30.17      C
ATOM   3433  CA  ASN   19      92.496  56.642  51.456  1.00 28.35      C
ATOM   3434  CB  ASN   19      91.468  56.959  52.545  1.00 37.98      C
ATOM   3435  CG  ASN   19      92.105  57.540  53.794  1.00 36.06      C
ATOM   3436  OD1 ASN   19      92.991  56.923  54.385  1.00 36.77      C
ATOM   3437  ND2 ASN   19      91.659  58.732  54.205  1.00 27.02      C
ATOM   3438  C   ASN   19      92.241  55.260  50.867  1.00 28.23      C
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ATOM	3439	O	ASN	19	91.113	54.941	50.502	1.00 25.92	C
ATOM	3440	N	LEU	20	93.291	54.446	50.781	1.00 37.11	C
ATOM	3441	CA	LEU	20	93.192	53.097	50.204	1.00 39.33	C
ATOM	3442	CB	LEU	20	94.382	52.830	49.284	1.00 52.73	C
ATOM	3443	CG	LEU	20	94.409	53.492	47.913	1.00 59.34	C
ATOM	3444	CD1	LEU	20	95.375	54.657	47.953	1.00 54.35	C
ATOM	3445	CD2	LEU	20	94.826	52.478	46.855	1.00 58.17	C
ATOM	3446	C	LEU	20	93.122	51.946	51.202	1.00 24.88	C
ATOM	3447	O	LEU	20	94.141	51.349	51.532	1.00 27.29	C
ATOM	3448	N	SER	21	91.926	51.619	51.670	1.00 24.25	C
ATOM	3449	CA	SER	21	91.795	50.515	52.601	1.00 32.93	C
ATOM	3450	CB	SER	21	90.474	50.603	53.357	1.00 22.84	C
ATOM	3451	OG	SER	21	90.626	50.123	54.682	1.00 42.82	C
ATOM	3452	C	SER	21	91.834	49.250	51.760	1.00 36.87	C
ATOM	3453	O	SER	21	91.633	49.308	50.551	1.00 50.83	C
ATOM	3454	N	CYS	22	92.098	48.109	52.384	1.00 41.84	C
ATOM	3455	CA	CYS	22	92.142	46.858	51.636	1.00 34.97	C
ATOM	3456	C	CYS	22	91.519	45.728	52.420	1.00 29.54	C
ATOM	3457	O	CYS	22	92.086	45.250	53.400	1.00 31.51	C
ATOM	3458	CB	CYS	22	93.578	46.504	51.294	1.00 44.42	C
ATOM	3459	SG	CYS	22	94.382	47.674	50.162	1.00 54.15	C
ATOM	3460	N	LYS	23	90.339	45.312	51.983	1.00 9.94	C
ATOM	3461	CA	LYS	23	89.630	44.234	52.639	1.00 27.48	C
ATOM	3462	CB	LYS	23	88.196	44.149	52.099	1.00 45.60	C
ATOM	3463	CG	LYS	23	87.083	44.123	53.160	1.00 46.91	C
ATOM	3464	CD	LYS	23	85.742	44.572	52.558	1.00 49.03	C
ATOM	3465	CE	LYS	23	84.537	43.911	53.219	1.00 44.60	C
ATOM	3466	NZ	LYS	23	83.321	43.966	52.347	1.00 31.56	C
ATOM	3467	C	LYS	23	90.373	42.933	52.354	1.00 28.04	C
ATOM	3468	O	LYS	23	90.727	42.651	51.209	1.00 27.74	C
ATOM	3469	N	TYR	24	90.616	42.154	53.404	1.00 48.19	C
ATOM	3470	CA	TYR	24	91.305	40.869	53.279	1.00 51.31	C
ATOM	3471	CB	TYR	24	92.585	40.864	54.121	1.00 33.41	C
ATOM	3472	CG	TYR	24	93.582	41.914	53.708	1.00 28.69	C
ATOM	3473	CD1	TYR	24	94.190	41.867	52.454	1.00 41.70	C
ATOM	3474	CE1	TYR	24	95.089	42.846	52.049	1.00 20.51	C
ATOM	3475	CD2	TYR	24	93.901	42.971	54.554	1.00 29.67	C
ATOM	3476	CE2	TYR	24	94.803	43.960	54.159	1.00 21.03	C
ATOM	3477	CZ	TYR	24	95.389	43.889	52.905	1.00 18.10	C
ATOM	3478	OH	TYR	24	96.263	44.862	52.495	1.00 37.76	C
ATOM	3479	C	TYR	24	90.403	39.736	53.749	1.00 47.73	C
ATOM	3480	O	TYR	24	89.264	39.957	54.151	1.00 49.24	C
ATOM	3481	N	SER	25	90.920	38.518	53.690	1.00 57.38	C
ATOM	3482	CA	SER	25	90.175	37.353	54.146	1.00 60.28	C
ATOM	3483	CB	SER	25	89.888	36.407	52.975	1.00 59.25	C
ATOM	3484	OG	SER	25	91.068	36.142	52.238	1.00 69.79	C
ATOM	3485	C	SER	25	91.076	36.668	55.164	1.00 54.52	C
ATOM	3486	O	SER	25	91.290	35.455	55.108	1.00 60.55	C
ATOM	3487	N	TYR	26	91.606	37.458	56.096	1.00 43.18	C
ATOM	3488	CA	TYR	26	92.516	36.933	57.101	1.00 31.88	C
ATOM	3489	CB	TYR	26	93.949	36.995	56.566	1.00 26.62	C
ATOM	3490	CG	TYR	26	94.845	35.878	57.060	1.00 37.63	C
ATOM	3491	CD1	TYR	26	95.606	36.026	58.220	1.00 43.69	C

ATOM	3492	CE1	TYR	26	96.443	35.003	58.673	1.00 50.14	C
ATOM	3493	CD2	TYR	26	94.941	34.677	56.363	1.00 43.23	C
ATOM	3494	CE2	TYR	26	95.776	33.646	56.809	1.00 62.28	C
ATOM	3495	CZ	TYR	26	96.524	33.816	57.964	1.00 56.86	C
ATOM	3496	OH	TYR	26	97.352	32.801	58.404	1.00 54.48	C
ATOM	3497	C	TYR	26	92.455	37.637	58.451	1.00 30.34	C
ATOM	3498	O	TYR	26	92.275	38.851	58.518	1.00 12.16	C
ATOM	3499	N	ASN	27	92.626	36.832	59.504	1.00 35.16	C
ATOM	3500	CA	ASN	27	92.639	37.230	60.920	1.00 43.53	C
ATOM	3501	CB	ASN	27	94.092	37.461	61.380	1.00 44.74	C
ATOM	3502	CG	ASN	27	94.595	38.869	61.095	1.00 54.71	C
ATOM	3503	OD1	ASN	27	93.890	39.691	60.503	1.00 49.86	C
ATOM	3504	ND2	ASN	27	95.833	39.153	61.521	1.00 38.35	C
ATOM	3505	C	ASN	27	91.760	38.379	61.413	1.00 52.07	C
ATOM	3506	O	ASN	27	91.255	39.159	60.582	1.00 64.58	C
ATOM	3507	OT	ASN	27	91.583	38.478	62.651	1.00 38.64	C
ATOM	3508	CB	SER	30	98.029	39.101	66.273	1.00 38.67	C
ATOM	3509	OG	SER	30	99.164	39.940	66.371	1.00 28.74	C
ATOM	3510	C	SER	30	99.198	37.741	64.527	1.00 48.62	C
ATOM	3511	O	SER	30	99.534	36.748	65.163	1.00 42.19	C
ATOM	3512	N	SER	30	96.758	37.537	64.847	1.00 40.61	C
ATOM	3513	CA	SER	30	97.910	38.480	64.881	1.00 46.89	C
ATOM	3514	N	ARG	31	99.906	38.226	63.505	1.00 52.76	C
ATOM	3515	CA	ARG	31	101.156	37.606	63.056	1.00 48.62	C
ATOM	3516	CB	ARG	31	100.864	36.509	62.014	1.00 48.21	C
ATOM	3517	CG	ARG	31	99.390	36.316	61.654	1.00 45.83	C
ATOM	3518	CD	ARG	31	99.123	34.913	61.098	1.00 45.48	C
ATOM	3519	NE	ARG	31	98.202	34.159	61.946	1.00 56.80	C
ATOM	3520	CZ	ARG	31	97.819	32.904	61.723	1.00 60.88	C
ATOM	3521	NH1	ARG	31	98.273	32.238	60.666	1.00 53.06	C
ATOM	3522	NH2	ARG	31	96.980	32.312	62.565	1.00 65.41	C
ATOM	3523	C	ARG	31	102.140	38.620	62.457	1.00 42.34	C
ATOM	3524	O	ARG	31	102.024	39.821	62.696	1.00 37.05	C
ATOM	3525	N	GLU	32	103.109	38.119	61.688	1.00 33.63	C
ATOM	3526	CA	GLU	32	104.114	38.959	61.035	1.00 28.55	C
ATOM	3527	CB	GLU	32	105.510	38.366	61.211	1.00 35.76	C
ATOM	3528	CG	GLU	32	106.639	39.289	60.762	1.00 44.46	C
ATOM	3529	CD	GLU	32	107.993	38.584	60.704	1.00 47.94	C
ATOM	3530	OE1	GLU	32	108.183	37.588	61.436	1.00 50.54	C
ATOM	3531	OE2	GLU	32	108.870	39.024	59.931	1.00 43.16	C
ATOM	3532	C	GLU	32	103.777	39.047	59.550	1.00 32.96	C
ATOM	3533	O	GLU	32	103.876	38.061	58.815	1.00 19.87	C
ATOM	3534	N	PHE	33	103.394	40.244	59.122	1.00 41.41	C
ATOM	3535	CA	PHE	33	102.989	40.488	57.747	1.00 35.05	C
ATOM	3536	CB	PHE	33	101.494	40.691	57.715	1.00 26.59	C
ATOM	3537	CG	PHE	33	101.065	41.944	58.408	1.00 24.17	C
ATOM	3538	CD1	PHE	33	101.369	43.192	57.861	1.00 23.40	C
ATOM	3539	CD2	PHE	33	100.374	41.889	59.611	1.00 15.64	C
ATOM	3540	CE1	PHE	33	100.989	44.367	58.496	1.00 28.02	C
ATOM	3541	CE2	PHE	33	99.984	43.063	60.260	1.00 24.23	C
ATOM	3542	CZ	PHE	33	100.292	44.304	59.703	1.00 31.35	C
ATOM	3543	C	PHE	33	103.640	41.716	57.121	1.00 34.54	C
ATOM	3544	O	PHE	33	104.134	42.613	57.813	1.00 21.74	C

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ATOM   3545  N   ARG   34     103.564  41.771  55.797  1.00 28.28      C
ATOM   3546  CA  ARG   34     104.145  42.864  55.045  1.00 21.13      C
ATOM   3547  CB  ARG   34     105.469  42.413  54.437  1.00 12.61      C
ATOM   3548  CG  ARG   34     106.189  43.483  53.643  1.00 19.39      C
ATOM   3549  CD  ARG   34     106.709  42.916  52.339  1.00 18.93      C
ATOM   3550  NE  ARG   34     108.026  43.440  51.995  1.00 36.83      C
ATOM   3551  CZ  ARG   34     108.251  44.344  51.045  1.00 40.83      C
ATOM   3552  NH1 ARG   34     107.239  44.825  50.340  1.00 45.97      C
ATOM   3553  NH2 ARG   34     109.490  44.752  50.785  1.00 38.52      C
ATOM   3554  C   ARG   34     103.202  43.309  53.940  1.00 32.95      C
ATOM   3555  O   ARG   34     103.239  42.779  52.831  1.00 41.93      C
ATOM   3556  N   ALA   35     102.362  44.294  54.239  1.00 34.63      C
ATOM   3557  CA  ALA   35     101.416  44.798  53.251  1.00 26.09      C
ATOM   3558  CB  ALA   35     100.381  45.657  53.921  1.00 26.37      C
ATOM   3559  C   ALA   35     102.134  45.599  52.173  1.00 28.19      C
ATOM   3560  O   ALA   35     103.201  46.163  52.414  1.00 19.20      C
ATOM   3561  N   SER   36     101.545  45.641  50.980  1.00 36.87      C
ATOM   3562  CA  SER   36     102.136  46.374  49.863  1.00 39.36      C
ATOM   3563  CB  SER   36     103.172  45.488  49.160  1.00 51.82      C
ATOM   3564  OG  SER   36     103.705  44.516  50.050  1.00 62.97      C
ATOM   3565  C   SER   36     101.099  46.886  48.847  1.00 32.13      C
ATOM   3566  O   SER   36     100.092  46.238  48.575  1.00 28.44      C
ATOM   3567  N   LEU   37     101.364  48.069  48.304  1.00 34.51      C
ATOM   3568  CA  LEU   37     100.496  48.705  47.320  1.00 31.61      C
ATOM   3569  CB  LEU   37      99.897  49.987  47.895  1.00 36.64      C
ATOM   3570  CG  LEU   37      98.943  50.801  47.023  1.00 21.97      C
ATOM   3571  CD1 LEU   37      97.533  50.720  47.578  1.00 21.64      C
ATOM   3572  CD2 LEU   37      99.412  52.231  46.991  1.00 26.43      C
ATOM   3573  C   LEU   37     101.393  49.042  46.148  1.00 28.60      C
ATOM   3574  O   LEU   37     102.341  49.811  46.295  1.00 35.19      C
ATOM   3575  N   HIS   38     101.112  48.454  44.993  1.00 22.34      C
ATOM   3576  CA  HIS   38     101.935  48.694  43.816  1.00 21.00      C
ATOM   3577  CB  HIS   38     102.418  47.370  43.232  1.00 29.80      C
ATOM   3578  CG  HIS   38     103.038  46.464  44.248  1.00 41.65      C
ATOM   3579  CD2 HIS   38     104.324  46.102  44.458  1.00 36.66      C
ATOM   3580  ND1 HIS   38     102.296  45.819  45.218  1.00 51.35      C
ATOM   3581  CE1 HIS   38     103.102  45.102  45.978  1.00 45.79      C
ATOM   3582  NE2 HIS   38     104.337  45.256  45.539  1.00 50.11      C
ATOM   3583  C   HIS   38     101.138  49.458  42.794  1.00 20.21      C
ATOM   3584  O   HIS   38      99.935  49.263  42.679  1.00 24.62      C
ATOM   3585  N   LYS   39     101.807  50.334  42.055  1.00 17.62      C
ATOM   3586  CA  LYS   39     101.135  51.154  41.065  1.00 28.42      C
ATOM   3587  CB  LYS   39     101.458  52.627  41.334  1.00 33.83      C
ATOM   3588  CG  LYS   39     100.938  53.579  40.281  1.00 47.76      C
ATOM   3589  CD  LYS   39     102.046  54.496  39.767  1.00 56.33      C
ATOM   3590  CE  LYS   39     101.922  54.727  38.264  1.00 52.05      C
ATOM   3591  NZ  LYS   39     101.573  56.133  37.920  1.00 39.26      C
ATOM   3592  C   LYS   39     101.527  50.784  39.644  1.00 37.38      C
ATOM   3593  O   LYS   39     102.715  50.697  39.323  1.00 38.26      C
ATOM   3594  N   GLY   40     100.528  50.559  38.793  1.00 33.72      C
ATOM   3595  CA  GLY   40     100.819  50.230  37.412  1.00 30.90      C
ATOM   3596  C   GLY   40     100.183  48.957  36.913  1.00 33.65      C
ATOM   3597  O   GLY   40     100.025  47.997  37.665  1.00 26.93      C
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ATOM	3598	N	LEU	41	99.819	48.962	35.634	1.00 48.13	C
ATOM	3599	CA	LEU	41	99.196	47.809	34.988	1.00 43.35	C
ATOM	3600	CB	LEU	41	98.598	48.211	33.633	1.00 41.37	C
ATOM	3601	CG	LEU	41	97.256	47.613	33.178	1.00 50.66	C
ATOM	3602	CD1	LEU	41	96.622	46.783	34.283	1.00 41.32	C
ATOM	3603	CD2	LEU	41	96.324	48.742	32.756	1.00 36.16	C
ATOM	3604	C	LEU	41	100.270	46.758	34.791	1.00 44.95	C
ATOM	3605	O	LEU	41	99.976	45.585	34.577	1.00 48.29	C
ATOM	3606	N	ASP	42	101.522	47.197	34.841	1.00 51.52	C
ATOM	3607	CA	ASP	42	102.648	46.285	34.713	1.00 53.82	C
ATOM	3608	CB	ASP	42	103.666	46.804	33.690	1.00 44.60	C
ATOM	3609	CG	ASP	42	104.352	48.090	34.125	1.00 49.55	C
ATOM	3610	OD1	ASP	42	103.874	48.765	35.063	1.00 40.26	C
ATOM	3611	OD2	ASP	42	105.385	48.427	33.510	1.00 48.33	C
ATOM	3612	C	ASP	42	103.249	46.241	36.106	1.00 57.65	C
ATOM	3613	O	ASP	42	104.394	45.836	36.298	1.00 57.61	C
ATOM	3614	N	SER	43	102.433	46.679	37.065	1.00 57.54	C
ATOM	3615	CA	SER	43	102.767	46.741	38.486	1.00 56.75	C
ATOM	3616	CB	SER	43	102.299	45.467	39.177	1.00 40.78	C
ATOM	3617	OG	SER	43	100.896	45.502	39.359	1.00 32.86	C
ATOM	3618	C	SER	43	104.234	46.995	38.803	1.00 59.27	C
ATOM	3619	O	SER	43	104.795	46.413	39.732	1.00 57.66	C
ATOM	3620	N	ALA	44	104.847	47.884	38.033	1.00 54.64	C
ATOM	3621	CA	ALA	44	106.244	48.215	38.224	1.00 41.67	C
ATOM	3622	CB	ALA	44	106.654	49.295	37.239	1.00 41.38	C
ATOM	3623	C	ALA	44	106.514	48.679	39.646	1.00 42.01	C
ATOM	3624	O	ALA	44	107.073	47.935	40.449	1.00 48.39	C
ATOM	3625	N	VAL	45	106.083	49.904	39.943	1.00 40.52	C
ATOM	3626	CA	VAL	45	106.290	50.563	41.239	1.00 34.97	C
ATOM	3627	CB	VAL	45	106.036	52.073	41.094	1.00 27.80	C
ATOM	3628	CG1	VAL	45	106.126	52.753	42.441	1.00 32.20	C
ATOM	3629	CG2	VAL	45	107.036	52.674	40.126	1.00 35.71	C
ATOM	3630	C	VAL	45	105.526	50.100	42.489	1.00 35.47	C
ATOM	3631	O	VAL	45	104.307	49.956	42.462	1.00 45.80	C
ATOM	3632	N	GLU	46	106.259	49.893	43.585	1.00 39.87	C
ATOM	3633	CA	GLU	46	105.666	49.503	44.868	1.00 41.71	C
ATOM	3634	CB	GLU	46	106.546	48.488	45.615	1.00 50.85	C
ATOM	3635	CG	GLU	46	106.163	48.251	47.094	1.00 34.64	C
ATOM	3636	CD	GLU	46	106.638	46.895	47.637	1.00 57.55	C
ATOM	3637	OE1	GLU	46	107.869	46.712	47.809	1.00 47.66	C
ATOM	3638	OE2	GLU	46	105.783	46.014	47.893	1.00 29.27	C
ATOM	3639	C	GLU	46	105.575	50.791	45.680	1.00 37.48	C
ATOM	3640	O	GLU	46	106.530	51.189	46.338	1.00 43.67	C
ATOM	3641	N	VAL	47	104.418	51.433	45.614	1.00 25.13	C
ATOM	3642	CA	VAL	47	104.173	52.692	46.297	1.00 15.83	C
ATOM	3643	CB	VAL	47	102.736	53.146	46.037	1.00 19.37	C
ATOM	3644	CG1	VAL	47	102.428	54.405	46.826	1.00 28.90	C
ATOM	3645	CG2	VAL	47	102.543	53.374	44.547	1.00 26.86	C
ATOM	3646	C	VAL	47	104.437	52.717	47.800	1.00 29.17	C
ATOM	3647	O	VAL	47	105.070	53.641	48.310	1.00 31.30	C
ATOM	3648	N	CYS	48	103.952	51.709	48.512	1.00 40.43	C
ATOM	3649	CA	CYS	48	104.142	51.665	49.955	1.00 37.33	C
ATOM	3650	C	CYS	48	104.145	50.246	50.495	1.00 27.79	C

ATOM	3651	O	CYS	48	103.618	49.331	49.864	1.00 20.24	C
ATOM	3652	CB	CYS	48	103.035	52.459	50.644	1.00 57.93	C
ATOM	3653	SG	CYS	48	103.314	52.822	52.407	1.00 69.94	C
ATOM	3654	N	VAL	49	104.747	50.070	51.664	1.00 18.58	C
ATOM	3655	CA	VAL	49	104.802	48.764	52.290	1.00 20.44	C
ATOM	3656	CB	VAL	49	106.139	48.030	51.966	1.00 27.56	C
ATOM	3657	CG1	VAL	49	107.042	48.931	51.131	1.00 18.34	C
ATOM	3658	CG2	VAL	49	106.851	47.592	53.249	1.00 17.63	C
ATOM	3659	C	VAL	49	104.654	48.926	53.794	1.00 33.14	C
ATOM	3660	O	VAL	49	105.537	49.471	54.455	1.00 29.92	C
ATOM	3661	N	VAL	50	103.523	48.467	54.324	1.00 41.12	C
ATOM	3662	CA	VAL	50	103.255	48.539	55.759	1.00 44.37	C
ATOM	3663	CB	VAL	50	101.796	48.932	56.031	1.00 48.04	C
ATOM	3664	CG1	VAL	50	101.486	48.786	57.511	1.00 45.70	C
ATOM	3665	CG2	VAL	50	101.562	50.367	55.576	1.00 35.76	C
ATOM	3666	C	VAL	50	103.553	47.176	56.385	1.00 38.20	C
ATOM	3667	O	VAL	50	102.899	46.176	56.085	1.00 36.51	C
ATOM	3668	N	TYR	51	104.543	47.146	57.264	1.00 25.60	C
ATOM	3669	CA	TYR	51	104.957	45.898	57.879	1.00 34.11	C
ATOM	3670	CB	TYR	51	106.479	45.779	57.799	1.00 34.41	C
ATOM	3671	CG	TYR	51	107.060	44.744	58.724	1.00 31.19	C
ATOM	3672	CD1	TYR	51	107.617	45.109	59.944	1.00 38.77	C
ATOM	3673	CE1	TYR	51	108.122	44.153	60.822	1.00 44.07	C
ATOM	3674	CD2	TYR	51	107.025	43.396	58.395	1.00 33.29	C
ATOM	3675	CE2	TYR	51	107.525	42.432	59.265	1.00 41.62	C
ATOM	3676	CZ	TYR	51	108.068	42.818	60.477	1.00 39.08	C
ATOM	3677	OH	TYR	51	108.511	41.867	61.364	1.00 47.15	C
ATOM	3678	C	TYR	51	104.507	45.729	59.315	1.00 33.68	C
ATOM	3679	O	TYR	51	104.696	46.613	60.145	1.00 23.59	C
ATOM	3680	N	GLY	52	103.927	44.571	59.603	1.00 29.01	C
ATOM	3681	CA	GLY	52	103.459	44.300	60.947	1.00 30.05	C
ATOM	3682	C	GLY	52	104.067	43.041	61.527	1.00 39.73	C
ATOM	3683	O	GLY	52	104.393	42.096	60.806	1.00 40.35	C
ATOM	3684	N	ASN	53	104.224	43.032	62.843	1.00 46.66	C
ATOM	3685	CA	ASN	53	104.798	41.888	63.537	1.00 57.56	C
ATOM	3686	CB	ASN	53	106.308	42.073	63.721	1.00 32.73	C
ATOM	3687	CG	ASN	53	106.971	40.851	64.322	1.00 30.74	C
ATOM	3688	OD1	ASN	53	106.474	39.728	64.185	1.00 25.99	C
ATOM	3689	ND2	ASN	53	108.099	41.059	64.995	1.00 35.70	C
ATOM	3690	C	ASN	53	104.141	41.729	64.897	1.00 63.15	C
ATOM	3691	O	ASN	53	104.709	42.114	65.918	1.00 67.81	C
ATOM	3692	N	TYR	54	102.941	41.159	64.906	1.00 66.70	C
ATOM	3693	CA	TYR	54	102.213	40.953	66.149	1.00 70.87	C
ATOM	3694	CB	TYR	54	103.004	40.008	67.072	1.00 60.20	C
ATOM	3695	CG	TYR	54	103.185	38.604	66.521	1.00 54.18	C
ATOM	3696	CD1	TYR	54	104.380	38.215	65.923	1.00 49.72	C
ATOM	3697	CE1	TYR	54	104.538	36.931	65.393	1.00 51.50	C
ATOM	3698	CD2	TYR	54	102.149	37.672	66.579	1.00 63.25	C
ATOM	3699	CE2	TYR	54	102.297	36.386	66.052	1.00 53.22	C
ATOM	3700	CZ	TYR	54	103.489	36.025	65.461	1.00 51.26	C
ATOM	3701	OH	TYR	54	103.625	34.761	64.931	1.00 41.36	C
ATOM	3702	C	TYR	54	102.018	42.313	66.811	1.00 75.80	C
ATOM	3703	O	TYR	54	101.118	43.072	66.443	1.00 70.77	C

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ATOM   3704  N   SER   55     102.870  42.617  67.784  1.00 83.17      C
ATOM   3705  CA  SER   55     102.805  43.892  68.483  1.00 89.21      C
ATOM   3706  CB  SER   55     103.373  43.750  69.896  1.00 89.77      C
ATOM   3707  OG  SER   55     102.332  43.662  70.853  1.00 90.69      C
ATOM   3708  C   SER   55     103.617  44.916  67.695  1.00 90.09      C
ATOM   3709  O   SER   55     103.181  45.378  66.639  1.00 92.24      C
ATOM   3710  N   GLN   56     104.796  45.251  68.218  1.00 90.35      C
ATOM   3711  CA  GLN   56     105.715  46.207  67.600  1.00 93.42      C
ATOM   3712  CB  GLN   56     106.882  45.448  66.957  1.00 91.24      C
ATOM   3713  CG  GLN   56     107.492  44.372  67.861  1.00 94.20      C
ATOM   3714  CD  GLN   56     108.069  43.192  67.088  1.00 99.99      C
ATOM   3715  OE1 GLN   56     108.128  42.066  67.595  1.00 87.06      C
ATOM   3716  NE2 GLN   56     108.500  43.446  65.854  1.00 99.99      C
ATOM   3717  C   GLN   56     105.040  47.121  66.572  1.00 96.11      C
ATOM   3718  O   GLN   56     104.866  46.744  65.413  1.00 99.98      C
ATOM   3719  N   GLN   57     104.670  48.323  67.013  1.00 90.45      C
ATOM   3720  CA  GLN   57     103.995  49.318  66.177  1.00 83.45      C
ATOM   3721  CB  GLN   57     104.417  50.732  66.589  1.00 85.60      C
ATOM   3722  CG  GLN   57     104.367  50.991  68.084  1.00 89.34      C
ATOM   3723  CD  GLN   57     105.744  50.966  68.718  1.00 87.16      C
ATOM   3724  OE1 GLN   57     106.497  51.937  68.635  1.00 76.99      C
ATOM   3725  NE2 GLN   57     106.080  49.849  69.355  1.00 90.12      C
ATOM   3726  C   GLN   57     104.185  49.175  64.669  1.00 80.35      C
ATOM   3727  O   GLN   57     105.278  48.877  64.182  1.00 77.96      C
ATOM   3728  N   LEU   58     103.095  49.401  63.943  1.00 76.47      C
ATOM   3729  CA  LEU   58     103.077  49.331  62.487  1.00 61.35      C
ATOM   3730  CB  LEU   58     101.723  49.838  61.972  1.00 52.59      C
ATOM   3731  CG  LEU   58     100.956  49.130  60.845  1.00 50.02      C
ATOM   3732  CD1 LEU   58     100.916  47.634  61.070  1.00 55.58      C
ATOM   3733  CD2 LEU   58      99.535  49.671  60.794  1.00 39.64      C
ATOM   3734  C   LEU   58     104.209  50.181  61.906  1.00 54.39      C
ATOM   3735  O   LEU   58     104.387  51.345  62.284  1.00 51.09      C
ATOM   3736  N   GLN   59     104.976  49.589  60.997  1.00 51.81      C
ATOM   3737  CA  GLN   59     106.080  50.290  60.346  1.00 46.97      C
ATOM   3738  CB  GLN   59     107.394  49.516  60.524  1.00 35.66      C
ATOM   3739  CG  GLN   59     108.469  50.260  61.308  1.00 32.42      C
ATOM   3740  CD  GLN   59     109.327  49.340  62.171  1.00 53.43      C
ATOM   3741  OE1 GLN   59     110.198  49.799  62.912  1.00 50.95      C
ATOM   3742  NE2 GLN   59     109.082  48.037  62.079  1.00 46.72      C
ATOM   3743  C   GLN   59     105.748  50.417  58.859  1.00 43.43      C
ATOM   3744  O   GLN   59     105.697  49.422  58.138  1.00 42.60      C
ATOM   3745  N   VAL   60     105.505  51.645  58.412  1.00 40.75      C
ATOM   3746  CA  VAL   60     105.172  51.907  57.018  1.00 39.80      C
ATOM   3747  CB  VAL   60     103.828  52.659  56.896  1.00 26.19      C
ATOM   3748  CG1 VAL   60     103.878  53.955  57.678  1.00 21.41      C
ATOM   3749  CG2 VAL   60     103.528  52.946  55.448  1.00 27.26      C
ATOM   3750  C   VAL   60     106.267  52.745  56.371  1.00 41.05      C
ATOM   3751  O   VAL   60     106.733  53.727  56.950  1.00 51.96      C
ATOM   3752  N   TYR   61     106.692  52.349  55.177  1.00 37.63      C
ATOM   3753  CA  TYR   61     107.731  53.086  54.477  1.00 25.83      C
ATOM   3754  CB  TYR   61     109.118  52.575  54.861  1.00 12.00      C
ATOM   3755  CG  TYR   61     109.496  51.237  54.274  1.00 18.91      C
ATOM   3756  CD1 TYR   61     109.216  50.053  54.953  1.00 42.23      C
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ATOM   3757  CE1 TYR   61     109.599  48.819  54.439  1.00 33.05      C
ATOM   3758  CD2 TYR   61     110.173  51.150  53.057  1.00 38.49      C
ATOM   3759  CE2 TYR   61     110.562  49.918  52.533  1.00 23.48      C
ATOM   3760  CZ  TYR   61     110.269  48.758  53.231  1.00 29.34      C
ATOM   3761  OH  TYR   61     110.627  47.535  52.714  1.00 30.14      C
ATOM   3762  C   TYR   61     107.540  52.981  52.986  1.00 35.71      C
ATOM   3763  O   TYR   61     106.694  52.214  52.513  1.00 35.76      C
ATOM   3764  N   SER   62     108.322  53.775  52.258  1.00 39.08      C
ATOM   3765  CA  SER   62     108.268  53.813  50.805  1.00 39.42      C
ATOM   3766  CB  SER   62     107.247  54.857  50.345  1.00 32.31      C
ATOM   3767  OG  SER   62     107.120  54.853  48.932  1.00 23.48      C
ATOM   3768  C   SER   62     109.643  54.137  50.220  1.00 45.43      C
ATOM   3769  O   SER   62     110.287  55.116  50.601  1.00 42.20      C
ATOM   3770  N   LYS   63     110.094  53.302  49.294  1.00 50.45      C
ATOM   3771  CA  LYS   63     111.388  53.499  48.655  1.00 44.30      C
ATOM   3772  CB  LYS   63     112.040  52.136  48.373  1.00 41.16      C
ATOM   3773  CG  LYS   63     113.045  51.676  49.431  1.00 41.13      C
ATOM   3774  CD  LYS   63     112.720  50.288  49.969  1.00 36.52      C
ATOM   3775  CE  LYS   63     113.769  49.809  50.972  1.00 27.51      C
ATOM   3776  NZ  LYS   63     114.917  49.099  50.322  1.00 14.01      C
ATOM   3777  C   LYS   63     111.173  54.243  47.343  1.00 40.39      C
ATOM   3778  O   LYS   63     112.079  54.322  46.515  1.00 43.49      C
ATOM   3779  N   THR   64     109.977  54.802  47.166  1.00 38.77      C
ATOM   3780  CA  THR   64     109.635  55.496  45.926  1.00 33.97      C
ATOM   3781  CB  THR   64     108.407  54.837  45.264  1.00 45.65      C
ATOM   3782  OG1 THR   64     107.445  54.502  46.272  1.00 61.07      C
ATOM   3783  CG2 THR   64     108.811  53.576  44.520  1.00 45.91      C
ATOM   3784  C   THR   64     109.360  56.988  46.033  1.00 33.47      C
ATOM   3785  O   THR   64     109.122  57.651  45.023  1.00 25.44      C
ATOM   3786  N   GLY   65     109.375  57.525  47.244  1.00 35.21      C
ATOM   3787  CA  GLY   65     109.119  58.946  47.383  1.00 35.72      C
ATOM   3788  C   GLY   65     107.644  59.286  47.468  1.00 35.69      C
ATOM   3789  O   GLY   65     107.198  60.317  46.970  1.00 41.32      C
ATOM   3790  N   PHE   66     106.881  58.405  48.100  1.00 31.14      C
ATOM   3791  CA  PHE   66     105.454  58.616  48.280  1.00 22.44      C
ATOM   3792  CB  PHE   66     104.680  57.350  47.914  1.00 15.68      C
ATOM   3793  CG  PHE   66     104.307  57.256  46.463  1.00 27.36      C
ATOM   3794  CD1 PHE   66     105.243  56.859  45.514  1.00 38.42      C
ATOM   3795  CD2 PHE   66     103.009  57.536  46.042  1.00 42.24      C
ATOM   3796  CE1 PHE   66     104.889  56.738  44.159  1.00 42.03      C
ATOM   3797  CE2 PHE   66     102.648  57.419  44.694  1.00 38.62      C
ATOM   3798  CZ  PHE   66     103.590  57.018  43.750  1.00 28.00      C
ATOM   3799  C   PHE   66     105.238  58.921  49.758  1.00 29.60      C
ATOM   3800  O   PHE   66     105.701  58.176  50.622  1.00 28.41      C
ATOM   3801  N   ASN   67     104.569  60.028  50.053  1.00 29.26      C
ATOM   3802  CA  ASN   67     104.289  60.375  51.436  1.00 28.71      C
ATOM   3803  CB  ASN   67     103.776  61.814  51.516  1.00 44.50      C
ATOM   3804  CG  ASN   67     103.832  62.385  52.923  1.00 56.37      C
ATOM   3805  OD1 ASN   67     103.890  63.603  53.110  1.00 55.38      C
ATOM   3806  ND2 ASN   67     103.816  61.507  53.922  1.00 49.90      C
ATOM   3807  C   ASN   67     103.208  59.390  51.891  1.00 30.16      C
ATOM   3808  O   ASN   67     102.018  59.698  51.893  1.00 22.60      C
ATOM   3809  N   CYS   68     103.627  58.190  52.276  1.00 45.93      C
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ATOM	3810	CA	CYS	68	102.678	57.165	52.691	1.00 37.84	C
ATOM	3811	C	CYS	68	102.480	56.998	54.198	1.00 40.89	C
ATOM	3812	O	CYS	68	103.414	57.122	54.986	1.00 26.35	C
ATOM	3813	CB	CYS	68	103.087	55.824	52.089	1.00 23.40	C
ATOM	3814	SG	CYS	68	102.108	54.426	52.713	1.00 53.33	C
ATOM	3815	N	ASP	69	101.243	56.700	54.579	1.00 44.34	C
ATOM	3816	CA	ASP	69	100.880	56.482	55.974	1.00 40.80	C
ATOM	3817	CB	ASP	69	100.101	57.683	56.515	1.00 56.37	C
ATOM	3818	CG	ASP	69	100.821	59.001	56.287	1.00 59.33	C
ATOM	3819	OD1	ASP	69	100.303	59.840	55.520	1.00 66.37	C
ATOM	3820	OD2	ASP	69	101.902	59.200	56.877	1.00 68.80	C
ATOM	3821	C	ASP	69	100.001	55.240	56.013	1.00 32.24	C
ATOM	3822	O	ASP	69	99.172	55.051	55.128	1.00 33.63	C
ATOM	3823	N	GLY	70	100.175	54.395	57.026	1.00 34.87	C
ATOM	3824	CA	GLY	70	99.369	53.184	57.107	1.00 28.23	C
ATOM	3825	C	GLY	70	98.691	52.933	58.444	1.00 28.75	C
ATOM	3826	O	GLY	70	99.260	53.198	59.501	1.00 34.76	C
ATOM	3827	N	LYS	71	97.468	52.416	58.394	1.00 40.41	C
ATOM	3828	CA	LYS	71	96.697	52.123	59.599	1.00 49.78	C
ATOM	3829	CB	LYS	71	95.522	53.095	59.714	1.00 57.09	C
ATOM	3830	CG	LYS	71	95.747	54.285	60.629	1.00 56.31	C
ATOM	3831	CD	LYS	71	94.477	55.139	60.720	1.00 55.32	C
ATOM	3832	CE	LYS	71	94.459	56.004	61.984	1.00 59.27	C
ATOM	3833	NZ	LYS	71	93.094	56.536	62.310	1.00 33.49	C
ATOM	3834	C	LYS	71	96.160	50.690	59.553	1.00 51.01	C
ATOM	3835	O	LYS	71	95.553	50.274	58.568	1.00 42.24	C
ATOM	3836	N	LEU	72	96.373	49.940	60.628	1.00 51.79	C
ATOM	3837	CA	LEU	72	95.907	48.564	60.684	1.00 61.74	C
ATOM	3838	CB	LEU	72	96.773	47.760	61.650	1.00 62.34	C
ATOM	3839	CG	LEU	72	97.284	46.425	61.103	1.00 66.36	C
ATOM	3840	CD1	LEU	72	98.165	45.754	62.147	1.00 68.74	C
ATOM	3841	CD2	LEU	72	96.107	45.527	60.736	1.00 53.65	C
ATOM	3842	C	LEU	72	94.436	48.447	61.090	1.00 73.73	C
ATOM	3843	O	LEU	72	93.860	49.374	61.663	1.00 88.59	C
ATOM	3844	N	GLY	73	93.835	47.298	60.789	1.00 67.09	C
ATOM	3845	CA	GLY	73	92.443	47.075	61.126	1.00 50.60	C
ATOM	3846	C	GLY	73	91.964	45.670	60.808	1.00 56.73	C
ATOM	3847	O	GLY	73	91.356	45.434	59.760	1.00 64.99	C
ATOM	3848	N	ASN	74	92.246	44.735	61.713	1.00 46.04	C
ATOM	3849	CA	ASN	74	91.828	43.342	61.566	1.00 54.16	C
ATOM	3850	CB	ASN	74	90.316	43.231	61.790	1.00 79.65	C
ATOM	3851	CG	ASN	74	89.953	42.174	62.814	1.00 90.87	C
ATOM	3852	OD1	ASN	74	88.992	42.334	63.574	1.00 90.68	C
ATOM	3853	ND2	ASN	74	90.715	41.086	62.838	1.00 89.35	C
ATOM	3854	C	ASN	74	92.180	42.738	60.215	1.00 54.40	C
ATOM	3855	O	ASN	74	93.332	42.413	59.951	1.00 62.07	C
ATOM	3856	N	GLU	75	91.171	42.577	59.364	1.00 55.88	C
ATOM	3857	CA	GLU	75	91.364	42.010	58.035	1.00 47.09	C
ATOM	3858	CB	GLU	75	90.269	40.988	57.722	1.00 56.56	C
ATOM	3859	CG	GLU	75	88.966	41.211	58.471	1.00 48.68	C
ATOM	3860	CD	GLU	75	88.614	40.047	59.379	1.00 58.55	C
ATOM	3861	OE1	GLU	75	88.407	38.928	58.859	1.00 55.16	C
ATOM	3862	OE2	GLU	75	88.547	40.250	60.612	1.00 54.08	C

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ATOM   3863  C   GLU   75      91.323  43.127  57.013  1.00 44.01      C
ATOM   3864  O   GLU   75      90.606  43.055  56.017  1.00 27.15      C
ATOM   3865  N   SER   76      92.107  44.162  57.268  1.00 36.46      C
ATOM   3866  CA  SER   76      92.143  45.296  56.376  1.00 31.85      C
ATOM   3867  CB  SER   76      90.835  46.072  56.492  1.00 24.92      C
ATOM   3868  OG  SER   76      90.835  46.835  57.681  1.00 16.45      C
ATOM   3869  C   SER   76      93.292  46.208  56.733  1.00 32.47      C
ATOM   3870  O   SER   76      93.689  46.294  57.892  1.00 34.00      C
ATOM   3871  N   VAL   77      93.826  46.884  55.723  1.00 38.60      C
ATOM   3872  CA  VAL   77      94.906  47.848  55.908  1.00 32.38      C
ATOM   3873  CB  VAL   77      96.272  47.308  55.386  1.00 45.71      C
ATOM   3874  CG1 VAL   77      96.747  48.122  54.190  1.00 37.47      C
ATOM   3875  CG2 VAL   77      97.327  47.372  56.484  1.00 19.29      C
ATOM   3876  C   VAL   77      94.509  49.083  55.101  1.00 33.67      C
ATOM   3877  O   VAL   77      93.934  48.972  54.013  1.00 38.06      C
ATOM   3878  N   THR   78      94.811  50.260  55.630  1.00 40.03      C
ATOM   3879  CA  THR   78      94.475  51.493  54.929  1.00 38.24      C
ATOM   3880  CB  THR   78      93.548  52.377  55.787  1.00 35.10      C
ATOM   3881  OG1 THR   78      92.594  51.551  56.472  1.00 36.53      C
ATOM   3882  CG2 THR   78      92.804  53.363  54.916  1.00 36.45      C
ATOM   3883  C   THR   78      95.745  52.269  54.580  1.00 35.91      C
ATOM   3884  O   THR   78      96.574  52.540  55.451  1.00 31.92      C
ATOM   3885  N   PHE   79      95.896  52.610  53.301  1.00 39.13      C
ATOM   3886  CA  PHE   79      97.059  53.358  52.824  1.00 29.89      C
ATOM   3887  CB  PHE   79      97.532  52.801  51.487  1.00 35.47      C
ATOM   3888  CG  PHE   79      97.996  51.380  51.553  1.00 41.67      C
ATOM   3889  CD1 PHE   79      97.174  50.342  51.123  1.00 46.33      C
ATOM   3890  CD2 PHE   79      99.271  51.077  52.019  1.00 35.39      C
ATOM   3891  CE1 PHE   79      97.621  49.026  51.155  1.00 34.72      C
ATOM   3892  CE2 PHE   79      99.724  49.765  52.054  1.00 17.78      C
ATOM   3893  CZ  PHE   79      98.895  48.736  51.619  1.00 26.82      C
ATOM   3894  C   PHE   79      96.687  54.816  52.645  1.00 20.01      C
ATOM   3895  O   PHE   79      95.843  55.143  51.817  1.00 39.07      C
ATOM   3896  N   TYR   80      97.328  55.690  53.414  1.00 37.92      C
ATOM   3897  CA  TYR   80      97.048  57.123  53.361  1.00 39.66      C
ATOM   3898  CB  TYR   80      97.043  57.706  54.775  1.00 41.42      C
ATOM   3899  CG  TYR   80      96.541  59.125  54.849  1.00 29.87      C
ATOM   3900  CD1 TYR   80      95.857  59.702  53.782  1.00 31.82      C
ATOM   3901  CE1 TYR   80      95.404  61.008  53.842  1.00 38.26      C
ATOM   3902  CD2 TYR   80      96.756  59.895  55.984  1.00 35.48      C
ATOM   3903  CE2 TYR   80      96.307  61.207  56.060  1.00 38.78      C
ATOM   3904  CZ  TYR   80      95.632  61.758  54.984  1.00 46.52      C
ATOM   3905  OH  TYR   80      95.195  63.066  55.046  1.00 43.37      C
ATOM   3906  C   TYR   80      98.034  57.901  52.508  1.00 36.43      C
ATOM   3907  O   TYR   80      98.960  58.529  53.028  1.00 41.51      C
ATOM   3908  N   LEU   81      97.817  57.873  51.199  1.00 37.66      C
ATOM   3909  CA  LEU   81      98.694  58.576  50.268  1.00 43.35      C
ATOM   3910  CB  LEU   81      98.538  57.997  48.861  1.00 40.97      C
ATOM   3911  CG  LEU   81      98.392  56.485  48.721  1.00 35.20      C
ATOM   3912  CD1 LEU   81      98.068  56.154  47.268  1.00 41.59      C
ATOM   3913  CD2 LEU   81      99.670  55.798  49.141  1.00 34.03      C
ATOM   3914  C   LEU   81      98.457  60.092  50.216  1.00 39.41      C
ATOM   3915  O   LEU   81      97.410  60.552  49.759  1.00 30.90      C
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ATOM   3916  N   GLN   82      99.450  60.853  50.678  1.00 45.56      C
ATOM   3917  CA  GLN   82      99.397  62.315  50.681  1.00 47.39      C
ATOM   3918  CB  GLN   82      99.884  62.868  52.023  1.00 48.95      C
ATOM   3919  CG  GLN   82      99.479  62.062  53.246  1.00 42.53      C
ATOM   3920  CD  GLN   82      99.397  62.921  54.491  1.00 35.76      C
ATOM   3921  OE1 GLN   82      99.826  62.514  55.575  1.00 35.27      C
ATOM   3922  NE2 GLN   82      98.857  64.127  54.339  1.00 29.92      C
ATOM   3923  C   GLN   82     100.280  62.884  49.571  1.00 42.88      C
ATOM   3924  O   GLN   82     101.148  62.194  49.035  1.00 41.58      C
ATOM   3925  N   ASN   83     100.060  64.148  49.237  1.00 45.46      C
ATOM   3926  CA  ASN   83     100.843  64.806  48.197  1.00 43.88      C
ATOM   3927  CB  ASN   83     102.229  65.139  48.748  1.00 38.56      C
ATOM   3928  CG  ASN   83     102.170  66.242  49.779  1.00 47.82      C
ATOM   3929  OD1 ASN   83     101.274  67.083  49.735  1.00 46.58      C
ATOM   3930  ND2 ASN   83     103.118  66.249  50.715  1.00 33.98      C
ATOM   3931  C   ASN   83     100.951  63.966  46.933  1.00 37.91      C
ATOM   3932  O   ASN   83     102.045  63.718  46.424  1.00 45.24      C
ATOM   3933  N   LEU   84      99.803  63.535  46.430  1.00 28.03      C
ATOM   3934  CA  LEU   84      99.760  62.723  45.230  1.00 19.39      C
ATOM   3935  CB  LEU   84      98.540  61.802  45.263  1.00 26.73      C
ATOM   3936  CG  LEU   84      98.774  60.341  45.664  1.00 34.93      C
ATOM   3937  CD1 LEU   84      97.483  59.552  45.502  1.00 37.57      C
ATOM   3938  CD2 LEU   84      99.877  59.729  44.812  1.00 36.66      C
ATOM   3939  C   LEU   84      99.675  63.650  44.037  1.00 20.07      C
ATOM   3940  O   LEU   84      98.914  64.609  44.049  1.00 31.39      C
ATOM   3941  N   TYR   85     100.460  63.365  43.006  1.00 33.90      C
ATOM   3942  CA  TYR   85     100.464  64.187  41.806  1.00 40.42      C
ATOM   3943  CB  TYR   85     101.840  64.117  41.123  1.00 59.23      C
ATOM   3944  CG  TYR   85     102.989  64.613  41.980  1.00 61.79      C
ATOM   3945  CD1 TYR   85     103.155  65.973  42.242  1.00 63.76      C
ATOM   3946  CE1 TYR   85     104.193  66.430  43.053  1.00 67.56      C
ATOM   3947  CD2 TYR   85     103.897  63.717  42.549  1.00 64.22      C
ATOM   3948  CE2 TYR   85     104.938  64.162  43.360  1.00 65.83      C
ATOM   3949  CZ  TYR   85     105.079  65.519  43.610  1.00 70.24      C
ATOM   3950  OH  TYR   85     106.093  65.965  44.428  1.00 73.68      C
ATOM   3951  C   TYR   85      99.378  63.724  40.841  1.00 33.25      C
ATOM   3952  O   TYR   85      98.880  62.606  40.943  1.00 33.16      C
ATOM   3953  N   VAL   86      99.018  64.598  39.907  1.00 32.80      C
ATOM   3954  CA  VAL   86      97.994  64.297  38.914  1.00 31.92      C
ATOM   3955  CB  VAL   86      97.503  65.600  38.241  1.00 29.33      C
ATOM   3956  CG1 VAL   86      98.476  66.730  38.548  1.00 32.20      C
ATOM   3957  CG2 VAL   86      97.361  65.409  36.743  1.00 34.84      C
ATOM   3958  C   VAL   86      98.504  63.312  37.854  1.00 30.06      C
ATOM   3959  O   VAL   86      97.721  62.621  37.204  1.00 28.12      C
ATOM   3960  N   ASN   87      99.819  63.246  37.685  1.00 37.39      C
ATOM   3961  CA  ASN   87     100.411  62.330  36.716  1.00 31.78      C
ATOM   3962  CB  ASN   87     101.803  62.811  36.348  1.00 30.37      C
ATOM   3963  CG  ASN   87     102.721  62.866  37.542  1.00 15.74      C
ATOM   3964  OD1 ASN   87     102.334  62.461  38.631  1.00 26.61      C
ATOM   3965  ND2 ASN   87     103.939  63.370  37.350  1.00 44.07      C
ATOM   3966  C   ASN   87     100.504  60.955  37.374  1.00 31.73      C
ATOM   3967  O   ASN   87     100.964  59.981  36.773  1.00 29.36      C
ATOM   3968  N   GLN   88     100.063  60.897  38.627  1.00 33.61      C
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ATOM   3969  CA  GLN   88     100.082  59.665  39.402  1.00 24.73      C
ATOM   3970  CB  GLN   88     100.430  59.983  40.871  1.00 26.06      C
ATOM   3971  CG  GLN   88     101.721  59.314  41.400  1.00 44.43      C
ATOM   3972  CD  GLN   88     102.692  60.285  42.081  1.00 36.54      C
ATOM   3973  OE1 GLN   88     102.504  60.675  43.235  1.00 26.99      C
ATOM   3974  NE2 GLN   88     103.743  60.668  41.363  1.00 38.97      C
ATOM   3975  C   GLN   88      98.747  58.896  39.322  1.00 26.16      C
ATOM   3976  O   GLN   88      98.635  57.805  39.872  1.00 22.71      C
ATOM   3977  N   THR   89      97.735  59.448  38.645  1.00 29.74      C
ATOM   3978  CA  THR   89      96.450  58.742  38.548  1.00 35.51      C
ATOM   3979  CB  THR   89      95.381  59.548  37.786  1.00 23.56      C
ATOM   3980  OG1 THR   89      95.586  59.391  36.381  1.00 37.82      C
ATOM   3981  CG2 THR   89      95.456  61.008  38.140  1.00  8.56      C
ATOM   3982  C   THR   89      96.686  57.434  37.808  1.00 30.57      C
ATOM   3983  O   THR   89      97.222  57.427  36.701  1.00 19.99      C
ATOM   3984  N   ASP   90      96.274  56.326  38.411  1.00 26.02      C
ATOM   3985  CA  ASP   90      96.520  55.032  37.799  1.00 29.88      C
ATOM   3986  CB  ASP   90      98.023  54.758  37.848  1.00 17.27      C
ATOM   3987  CG  ASP   90      98.492  53.857  36.738  1.00 29.31      C
ATOM   3988  OD1 ASP   90      99.661  54.010  36.312  1.00 28.02      C
ATOM   3989  OD2 ASP   90      97.695  53.002  36.299  1.00 35.12      C
ATOM   3990  C   ASP   90      95.774  53.918  38.519  1.00 32.73      C
ATOM   3991  O   ASP   90      94.869  54.181  39.307  1.00 28.33      C
ATOM   3992  N   ILE   91      96.155  52.674  38.234  1.00 33.15      C
ATOM   3993  CA  ILE   91      95.549  51.524  38.891  1.00 29.34      C
ATOM   3994  CB  ILE   91      95.320  50.330  37.960  1.00 19.19      C
ATOM   3995  CG2 ILE   91      93.891  49.803  38.124  1.00  7.46      C
ATOM   3996  CG1 ILE   91      95.613  50.734  36.525  1.00 24.90      C
ATOM   3997  CD1 ILE   91      96.736  49.967  35.904  1.00 37.36      C
ATOM   3998  C   ILE   91      96.539  51.070  39.929  1.00 33.79      C
ATOM   3999  O   ILE   91      97.707  50.844  39.615  1.00 35.59      C
ATOM   4000  N   TYR   92      96.064  50.948  41.162  1.00 39.40      C
ATOM   4001  CA  TYR   92      96.891  50.521  42.274  1.00 25.36      C
ATOM   4002  CB  TYR   92      96.817  51.555  43.398  1.00 24.66      C
ATOM   4003  CG  TYR   92      97.472  52.872  43.039  1.00 27.16      C
ATOM   4004  CD1 TYR   92      98.646  53.282  43.669  1.00 32.14      C
ATOM   4005  CE1 TYR   92      99.265  54.474  43.327  1.00 24.99      C
ATOM   4006  CD2 TYR   92      96.933  53.697  42.051  1.00 24.44      C
ATOM   4007  CE2 TYR   92      97.547  54.896  41.703  1.00 24.44      C
ATOM   4008  CZ  TYR   92      98.712  55.275  42.344  1.00 18.97      C
ATOM   4009  OH  TYR   92      99.332  56.454  42.010  1.00 18.71      C
ATOM   4010  C   TYR   92      96.381  49.179  42.761  1.00 25.56      C
ATOM   4011  O   TYR   92      95.173  48.942  42.791  1.00 36.33      C
ATOM   4012  N   PHE   93      97.303  48.298  43.127  1.00 28.40      C
ATOM   4013  CA  PHE   93      96.931  46.984  43.621  1.00 29.94      C
ATOM   4014  CB  PHE   93      97.448  45.893  42.689  1.00 17.97      C
ATOM   4015  CG  PHE   93      97.105  46.113  41.258  1.00 24.43      C
ATOM   4016  CD1 PHE   93      97.978  46.793  40.422  1.00 27.44      C
ATOM   4017  CD2 PHE   93      95.921  45.617  40.733  1.00 30.96      C
ATOM   4018  CE1 PHE   93      97.673  46.973  39.076  1.00 46.97      C
ATOM   4019  CE2 PHE   93      95.610  45.792  39.391  1.00 31.89      C
ATOM   4020  CZ  PHE   93      96.483  46.467  38.562  1.00 33.13      C
ATOM   4021  C   PHE   93      97.470  46.739  45.020  1.00 35.26      C
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ATOM   4022  O   PHE    93      98.635  47.022  45.325  1.00 34.73      C
ATOM   4023  N   CYS    94      96.601  46.209  45.870  1.00 48.06      C
ATOM   4024  CA  CYS    94      96.969  45.907  47.235  1.00 36.83      C
ATOM   4025  C   CYS    94      97.635  44.546  47.284  1.00 31.31      C
ATOM   4026  O   CYS    94      97.397  43.692  46.431  1.00 33.02      C
ATOM   4027  CB  CYS    94      95.738  45.921  48.121  1.00 39.16      C
ATOM   4028  SG  CYS    94      96.102  46.711  49.706  1.00 59.22      C
ATOM   4029  N   LYS    95      98.475  44.349  48.288  1.00 35.15      C
ATOM   4030  CA  LYS    95      99.194  43.093  48.430  1.00 32.02      C
ATOM   4031  CB  LYS    95     100.593  43.227  47.824  1.00 20.95      C
ATOM   4032  CG  LYS    95     101.265  41.913  47.532  1.00 16.51      C
ATOM   4033  CD  LYS    95     102.720  42.111  47.179  1.00 20.20      C
ATOM   4034  CE  LYS    95     103.419  40.772  46.979  1.00 39.20      C
ATOM   4035  NZ  LYS    95     104.812  40.931  46.471  1.00 47.09      C
ATOM   4036  C   LYS    95      99.301  42.731  49.896  1.00 29.30      C
ATOM   4037  O   LYS    95      99.224  43.602  50.759  1.00 32.79      C
ATOM   4038  N   ILE    96      99.480  41.444  50.172  1.00 24.46      C
ATOM   4039  CA  ILE    96      99.619  40.978  51.542  1.00 19.72      C
ATOM   4040  CB  ILE    96      98.258  40.925  52.251  1.00 14.76      C
ATOM   4041  CG2 ILE    96      97.299  40.052  51.477  1.00 17.83      C
ATOM   4042  CG1 ILE    96      98.434  40.405  53.673  1.00 17.25      C
ATOM   4043  CD1 ILE    96      99.184  41.352  54.570  1.00  5.02      C
ATOM   4044  C   ILE    96     100.276  39.599  51.602  1.00 26.57      C
ATOM   4045  O   ILE    96      99.852  38.662  50.916  1.00 34.37      C
ATOM   4046  N   GLU    97     101.321  39.491  52.419  1.00 20.47      C
ATOM   4047  CA  GLU    97     102.052  38.243  52.592  1.00 27.23      C
ATOM   4048  CB  GLU    97     103.367  38.279  51.793  1.00 32.57      C
ATOM   4049  CG  GLU    97     104.186  39.550  51.949  1.00 38.60      C
ATOM   4050  CD  GLU    97     104.535  40.193  50.618  1.00 46.08      C
ATOM   4051  OE1 GLU    97     105.239  39.548  49.815  1.00 37.73      C
ATOM   4052  OE2 GLU    97     104.108  41.348  50.379  1.00 54.19      C
ATOM   4053  C   GLU    97     102.343  37.951  54.071  1.00 30.22      C
ATOM   4054  O   GLU    97     102.705  38.841  54.844  1.00 27.30      C
ATOM   4055  N   VAL    98     102.158  36.694  54.455  1.00 24.37      C
ATOM   4056  CA  VAL    98     102.395  36.256  55.817  1.00 17.97      C
ATOM   4057  CB  VAL    98     101.361  35.183  56.224  1.00 33.66      C
ATOM   4058  CG1 VAL    98     102.002  34.115  57.113  1.00 46.61      C
ATOM   4059  CG2 VAL    98     100.200  35.844  56.931  1.00 31.46      C
ATOM   4060  C   VAL    98     103.787  35.664  55.808  1.00 24.36      C
ATOM   4061  O   VAL    98     104.147  34.979  54.858  1.00 17.44      C
ATOM   4062  N   MET    99     104.569  35.936  56.851  1.00 41.56      C
ATOM   4063  CA  MET    99     105.932  35.414  56.940  1.00 37.25      C
ATOM   4064  CB  MET    99     106.951  36.540  56.753  1.00 26.44      C
ATOM   4065  CG  MET    99     106.449  37.906  57.176  1.00 37.71      C
ATOM   4066  SD  MET    99     106.981  39.212  56.039  1.00 49.54      C
ATOM   4067  CE  MET    99     105.587  39.271  54.899  1.00 38.22      C
ATOM   4068  C   MET    99     106.182  34.728  58.273  1.00 37.57      C
ATOM   4069  O   MET    99     107.286  34.241  58.526  1.00 31.40      C
ATOM   4070  N   TYR   100     105.154  34.712  59.119  1.00 45.50      C
ATOM   4071  CA  TYR   100     105.210  34.084  60.439  1.00 45.47      C
ATOM   4072  CB  TYR   100     106.441  34.532  61.218  1.00 49.87      C
ATOM   4073  CG  TYR   100     106.979  33.489  62.176  1.00 54.53      C
ATOM   4074  CD1 TYR   100     107.908  32.545  61.745  1.00 66.10      C
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ATOM   4075  CE1 TYR   100     108.466  31.625  62.622  1.00 67.96      C
ATOM   4076  CD2 TYR   100     106.611  33.483  63.523  1.00 50.84      C
ATOM   4077  CE2 TYR   100     107.166  32.559  64.415  1.00 57.94      C
ATOM   4078  CZ  TYR   100     108.098  31.636  63.951  1.00 57.97      C
ATOM   4079  OH  TYR   100     108.687  30.728  64.801  1.00 53.54      C
ATOM   4080  C   TYR   100     103.978  34.429  61.259  1.00 49.53      C
ATOM   4081  O   TYR   100     103.561  35.587  61.307  1.00 42.87      C
ATOM   4082  N   PRO   101     103.380  33.422  61.920  1.00 53.02      C
ATOM   4083  CD  PRO   101     102.180  33.528  62.771  1.00 52.41      C
ATOM   4084  CA  PRO   101     103.902  32.054  61.844  1.00 46.66      C
ATOM   4085  CB  PRO   101     103.126  31.300  62.927  1.00 42.16      C
ATOM   4086  CG  PRO   101     101.906  32.115  63.189  1.00 38.19      C
ATOM   4087  C   PRO   101     103.711  31.468  60.441  1.00 57.32      C
ATOM   4088  O   PRO   101     102.901  31.960  59.648  1.00 47.74      C
ATOM   4089  N   PRO   102     104.455  30.400  60.122  1.00 58.81      C
ATOM   4090  CD  PRO   102     105.410  29.707  61.000  1.00 43.99      C
ATOM   4091  CA  PRO   102     104.368  29.758  58.807  1.00 54.29      C
ATOM   4092  CB  PRO   102     105.585  28.824  58.766  1.00 46.96      C
ATOM   4093  CG  PRO   102     106.354  29.090  60.030  1.00 46.28      C
ATOM   4094  C   PRO   102     103.072  28.997  58.565  1.00 50.83      C
ATOM   4095  O   PRO   102     102.265  28.812  59.475  1.00 51.79      C
ATOM   4096  N   PRO   103     102.858  28.550  57.321  1.00 43.58      C
ATOM   4097  CD  PRO   103     101.692  27.757  56.901  1.00 38.84      C
ATOM   4098  CA  PRO   103     103.784  28.756  56.209  1.00 34.80      C
ATOM   4099  CB  PRO   103     103.457  27.611  55.247  1.00 35.84      C
ATOM   4100  CG  PRO   103     102.280  26.863  55.860  1.00 31.11      C
ATOM   4101  C   PRO   103     103.581  30.127  55.566  1.00 39.20      C
ATOM   4102  O   PRO   103     102.790  30.939  56.055  1.00 35.30      C
ATOM   4103  N   TYR   104     104.311  30.382  54.481  1.00 40.51      C
ATOM   4104  CA  TYR   104     104.199  31.644  53.760  1.00 40.50      C
ATOM   4105  CB  TYR   104     105.226  31.719  52.630  1.00 34.12      C
ATOM   4106  CG  TYR   104     105.224  33.036  51.888  1.00 35.99      C
ATOM   4107  CD1 TYR   104     104.659  33.143  50.615  1.00 49.18      C
ATOM   4108  CE1 TYR   104     104.652  34.363  49.926  1.00 50.34      C
ATOM   4109  CD2 TYR   104     105.784  34.179  52.458  1.00 34.98      C
ATOM   4110  CE2 TYR   104     105.782  35.403  51.779  1.00 35.62      C
ATOM   4111  CZ  TYR   104     105.215  35.485  50.518  1.00 39.99      C
ATOM   4112  OH  TYR   104     105.205  36.685  49.853  1.00 32.85      C
ATOM   4113  C   TYR   104     102.804  31.725  53.168  1.00 44.36      C
ATOM   4114  O   TYR   104     102.311  30.749  52.603  1.00 46.76      C
ATOM   4115  N   LEU   105     102.171  32.885  53.304  1.00 47.99      C
ATOM   4116  CA  LEU   105     100.827  33.096  52.778  1.00 43.06      C
ATOM   4117  CB  LEU   105      99.859  33.347  53.929  1.00 44.75      C
ATOM   4118  CG  LEU   105      98.748  32.310  54.097  1.00 55.87      C
ATOM   4119  CD1 LEU   105      98.181  31.958  52.725  1.00 60.46      C
ATOM   4120  CD2 LEU   105      99.289  31.062  54.797  1.00 56.52      C
ATOM   4121  C   LEU   105     100.819  34.283  51.813  1.00 45.31      C
ATOM   4122  O   LEU   105     101.438  35.308  52.085  1.00 44.10      C
ATOM   4123  N   ASP   106     100.107  34.144  50.696  1.00 53.21      C
ATOM   4124  CA  ASP   106     100.046  35.199  49.681  1.00 56.65      C
ATOM   4125  CB  ASP   106     100.961  34.827  48.512  1.00 73.34      C
ATOM   4126  CG  ASP   106     101.724  36.011  47.979  1.00 81.75      C
ATOM   4127  OD1 ASP   106     101.437  37.143  48.432  1.00 85.62      C
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ATOM   4128  OD2 ASP   106     102.603  35.802  47.109  1.00 80.61      C
ATOM   4129  C   ASP   106      98.639  35.462  49.145  1.00 52.61      C
ATOM   4130  O   ASP   106      97.772  34.592  49.199  1.00 62.59      C
ATOM   4131  N   ASN   107      98.422  36.658  48.609  1.00 42.29      C
ATOM   4132  CA  ASN   107      97.110  37.028  48.072  1.00 50.80      C
ATOM   4133  CB  ASN   107      96.826  38.492  48.359  1.00 42.50      C
ATOM   4134  CG  ASN   107      97.855  39.393  47.736  1.00 41.45      C
ATOM   4135  OD1 ASN   107      97.691  39.852  46.607  1.00 44.69      C
ATOM   4136  ND2 ASN   107      98.940  39.637  48.461  1.00 38.52      C
ATOM   4137  C   ASN   107      96.997  36.815  46.564  1.00 55.83      C
ATOM   4138  O   ASN   107      97.990  36.865  45.840  1.00 54.74      C
ATOM   4139  N   GLU   108      95.771  36.601  46.098  1.00 61.82      C
ATOM   4140  CA  GLU   108      95.513  36.393  44.678  1.00 62.32      C
ATOM   4141  CB  GLU   108      94.305  35.474  44.485  1.00 65.84      C
ATOM   4142  CG  GLU   108      93.817  34.809  45.757  1.00 72.69      C
ATOM   4143  CD  GLU   108      92.445  35.295  46.180  1.00 73.87      C
ATOM   4144  OE1 GLU   108      91.534  34.453  46.327  1.00 58.56      C
ATOM   4145  OE2 GLU   108      92.285  36.522  46.366  1.00 79.05      C
ATOM   4146  C   GLU   108      95.244  37.722  43.991  1.00 64.40      C
ATOM   4147  O   GLU   108      94.094  38.171  43.936  1.00 61.70      C
ATOM   4148  N   LYS   109      96.306  38.339  43.467  1.00 64.63      C
ATOM   4149  CA  LYS   109      96.215  39.629  42.782  1.00 60.84      C
ATOM   4150  CB  LYS   109      96.054  39.420  41.274  1.00 43.96      C
ATOM   4151  CG  LYS   109      97.094  38.496  40.666  1.00 66.29      C
ATOM   4152  CD  LYS   109      98.399  39.235  40.373  1.00 84.02      C
ATOM   4153  CE  LYS   109      99.309  38.435  39.432  1.00 77.45      C
ATOM   4154  NZ  LYS   109     100.234  39.299  38.636  1.00 53.39      C
ATOM   4155  C   LYS   109      95.040  40.435  43.331  1.00 59.47      C
ATOM   4156  O   LYS   109      94.893  40.571  44.545  1.00 73.09      C
ATOM   4157  N   SER   110      94.201  40.950  42.440  1.00 49.53      C
ATOM   4158  CA  SER   110      93.038  41.734  42.841  1.00 50.60      C
ATOM   4159  CB  SER   110      93.404  42.706  43.969  1.00 48.38      C
ATOM   4160  OG  SER   110      93.807  43.962  43.448  1.00 55.94      C
ATOM   4161  C   SER   110      92.455  42.520  41.670  1.00 49.16      C
ATOM   4162  O   SER   110      93.098  42.693  40.634  1.00 36.85      C
ATOM   4163  N   ASN   111      91.228  43.000  41.841  1.00 50.24      C
ATOM   4164  CA  ASN   111      90.580  43.770  40.795  1.00 48.26      C
ATOM   4165  CB  ASN   111      89.073  43.868  41.068  1.00 50.05      C
ATOM   4166  CG  ASN   111      88.273  42.770  40.364  1.00 52.55      C
ATOM   4167  OD1 ASN   111      87.101  42.539  40.671  1.00 30.90      C
ATOM   4168  ND2 ASN   111      88.912  42.089  39.413  1.00 60.36      C
ATOM   4169  C   ASN   111      91.212  45.162  40.708  1.00 42.47      C
ATOM   4170  O   ASN   111      90.982  45.896  39.748  1.00 48.01      C
ATOM   4171  N   GLY   112      92.007  45.517  41.717  1.00 44.01      C
ATOM   4172  CA  GLY   112      92.682  46.808  41.729  1.00 36.00      C
ATOM   4173  C   GLY   112      91.830  48.015  42.081  1.00 36.58      C
ATOM   4174  O   GLY   112      90.630  47.892  42.343  1.00 33.31      C
ATOM   4175  N   THR   113      92.455  49.189  42.094  1.00 28.16      C
ATOM   4176  CA  THR   113      91.738  50.416  42.403  1.00 29.29      C
ATOM   4177  CB  THR   113      91.671  50.667  43.929  1.00 25.84      C
ATOM   4178  OG1 THR   113      90.959  51.884  44.186  1.00 13.15      C
ATOM   4179  CG2 THR   113      93.061  50.762  44.514  1.00 35.81      C
ATOM   4180  C   THR   113      92.344  51.636  41.722  1.00 29.94      C
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ATOM   4181  O   THR  113      93.375  52.157  42.133  1.00 21.21      C
ATOM   4182  N   ILE  114      91.679  52.074  40.662  1.00 31.79      C
ATOM   4183  CA  ILE  114      92.093  53.243  39.905  1.00 24.64      C
ATOM   4184  CB  ILE  114      91.132  53.521  38.721  1.00 29.78      C
ATOM   4185  CG2 ILE  114      91.159  55.001  38.361  1.00 29.89      C
ATOM   4186  CG1 ILE  114      91.510  52.661  37.519  1.00 45.18      C
ATOM   4187  CD1 ILE  114      91.376  53.376  36.182  1.00 48.49      C
ATOM   4188  C   ILE  114      92.019  54.450  40.821  1.00 21.71      C
ATOM   4189  O   ILE  114      91.050  54.632  41.546  1.00 23.04      C
ATOM   4190  N   ILE  115      93.028  55.296  40.770  1.00 22.63      C
ATOM   4191  CA  ILE  115      93.003  56.483  41.593  1.00 25.37      C
ATOM   4192  CB  ILE  115      94.147  56.461  42.585  1.00 19.98      C
ATOM   4193  CG2 ILE  115      94.249  57.798  43.307  1.00 15.47      C
ATOM   4194  CG1 ILE  115      93.925  55.312  43.558  1.00  5.93      C
ATOM   4195  CD1 ILE  115      95.089  55.086  44.508  1.00 25.93      C
ATOM   4196  C   ILE  115      93.104  57.712  40.701  1.00 36.88      C
ATOM   4197  O   ILE  115      94.147  57.984  40.112  1.00 39.31      C
ATOM   4198  N   HIS  116      92.003  58.445  40.604  1.00 36.64      C
ATOM   4199  CA  HIS  116      91.951  59.641  39.779  1.00 42.31      C
ATOM   4200  CB  HIS  116      90.530  59.854  39.250  1.00 55.50      C
ATOM   4201  CG  HIS  116      90.397  61.008  38.303  1.00 53.01      C
ATOM   4202  CD2 HIS  116      89.311  61.534  37.690  1.00 53.38      C
ATOM   4203  ND1 HIS  116      91.473  61.764  37.884  1.00 49.21      C
ATOM   4204  CE1 HIS  116      91.054  62.700  37.058  1.00 52.55      C
ATOM   4205  NE2 HIS  116      89.744  62.584  36.920  1.00 46.03      C
ATOM   4206  C   HIS  116      92.380  60.847  40.592  1.00 38.13      C
ATOM   4207  O   HIS  116      91.655  61.278  41.486  1.00 35.69      C
ATOM   4208  N   VAL  117      93.554  61.387  40.274  1.00 35.30      C
ATOM   4209  CA  VAL  117      94.078  62.550  40.980  1.00 36.81      C
ATOM   4210  CB  VAL  117      95.606  62.463  41.146  1.00 24.40      C
ATOM   4211  CG1 VAL  117      96.075  63.529  42.109  1.00 30.24      C
ATOM   4212  CG2 VAL  117      96.004  61.087  41.647  1.00 21.51      C
ATOM   4213  C   VAL  117      93.747  63.857  40.271  1.00 44.32      C
ATOM   4214  O   VAL  117      93.901  63.973  39.054  1.00 48.83      C
ATOM   4215  N   LYS  118      93.304  64.837  41.055  1.00 61.70      C
ATOM   4216  CA  LYS  118      92.926  66.160  40.555  1.00 65.79      C
ATOM   4217  CB  LYS  118      94.076  66.809  39.779  1.00 48.95      C
ATOM   4218  CG  LYS  118      94.137  68.329  39.934  1.00 51.90      C
ATOM   4219  CD  LYS  118      93.956  69.065  38.603  1.00 54.76      C
ATOM   4220  CE  LYS  118      94.163  70.575  38.754  1.00 49.49      C
ATOM   4221  NZ  LYS  118      95.564  71.003  38.435  1.00 45.55      C
ATOM   4222  C   LYS  118      91.693  66.107  39.664  1.00 78.13      C
ATOM   4223  O   LYS  118      91.566  67.006  38.807  1.00 88.53      C
ATOM   4224  OT  LYS  118      90.872  65.178  39.832  1.00 83.59      C
END
```

Table 5

DNA sequence of human CD28 cDNA

```
agactctcag gccttggcag gtgcgtcttt cagttcccct cacacttcgg gttcctcggg      60
gaggaggggc tggaacccta gcccatcgtc aggacaaaga tgctcaggct gctcttggct     120
ctcaacttat tcccttcaat tcaagtaaca ggaaacaaga ttttggtgaa gcagtcgccc     180
atgcttgtag cgtacgacaa tgcggtcaac cttagctgca agtattccta caatctcttc     240
tcaagggagt tccgggcatc ccttcacaaa ggactggata gtgctgtgga agtctgtgtt     300
gtatatggga attactccca gcagcttcag gtttactcaa aaacggggtt caactgtgat     360
gggaaattgg gcaatgaatc agtgacattc tacctccaga atttgtatgt taaccaaaca     420
gatatttact tctgcaaaat tgaagttatg tatcctcctc cttacctaga caatgagaag     480
agcaatggaa ccattatcca tgtgaaaggg aaacaccttt gtccaagtcc cctatttccc     540
ggaccttcta agcccttttg ggtgctggtg gtggttggtg gagtcctggc ttgctatagc     600
ttgctagtaa cagtggcctt tattattttc tgggtgagga gtaagaggag caggctcctg     660
cacagtgact acatgaacat gactccccgc cgccccgggc ccacccgcaa gcattaccag     720
ccctatgccc caccacgcga cttcgcagcc tatcgctcct gacacggacg cctatccaga     780
agccagccgg ctggcagccc ccatctgctc aatatcactg ctctggatag gaaatgaccg     840
ccatctccag ccggccacct cagcccctgt tgggccacca atgccaattt ttctcgagtg     900
actagaccaa atatcaagat cattttgaga ctctgaaatg aagtaaaaga gatttcctgt     960
gacaggccaa gtcttacagt gccatggccc acattccaac ttaccatgta cttagtgact    1020
tgactgagaa gttagggtag aaaacaaaaa gggagtggat tctgggagcc tcttcccttt    1080
ctcactcacc tgcacatctc agtcaagcaa agtgtggtat ccacagacat tttagttgca    1140
gaagaaaggc taggaaatca ttccttttgg ttaaatgggt gtttaatctt ttggttagtg    1200
ggttaaacgg ggtaagttag agtaggggga gggataggaa gacatattta aaaaccatta    1260
aaacactgtc tcccactcat gaaatgagcc acgtagttcc tatttaatgc tgttttcctt    1320
tagtttagaa atacatagac attgtctttt atgaattctg atcatattta gtcattttga    1380
ccaaatgagg gatttggtca aatgagggat tccctcaaag caatatcagg taaaccaagt    1440
tgctttcctc actccctgtc atgagacttc agtgttaatg ttcacaatat actttcgaaa    1500
gaataaaata gttc                                                      1514
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Amino acid sequence of human CD28 (SEQ ID NO:1)

MLRLLLALNL FPSIQVTGNK ILVKQSPMLV AYDNAVNLSC KYSYNLFSRE FRASLHKGLD
SAVEVCVVYG NYSQQLQVYS KTGFNCDGKL GNESVTFYLQ NLYVNQTDIY FCKIEVMYPP
PYLDNEKSNG TIIHVKGKHL CPSPLFPGPS KPFWVLVVVG GVLACYSLLV TVAFIIFWVR
SKRSRLLHSD YMNMTPRRPG PTRKHYQPYA PPRDFAAYRS

The extracellular domain is shown in bold
The stalk region is underlined

Table 6

CD28TFc sequence (SEQ ID NO:2)

(thrombin site separating the two halves of the chimera is shown in bold)

```
   CCCCATCCGCTCAAGCAGGCCACCATGGATTGGCTGCGGAACTTGCTATTCCTGATGGCG
 1 ---------+---------+---------+---------+---------+---------+ 60
   GGGGTAGGCGAGTTCGTCCGGTGGTACCTAACCGACGCCTTGAACGATAAGGACTACCGC

a                                M   D   W   L   R   N   L   L   F   L   M   A   -

   GCCGCTCAAAGTATCAACGCGAACAAGATCTTGGTGAAGCAGTCGCCCATGCTTGTAGCG
61 ---------+---------+---------+---------+---------+---------+ 120
   CGGCGAGTTTCATAGTTGCGCTTGTTCTAGAACCACTTCGTCAGCGGGTACGAACATCGC

a        A   A   Q   S   I   N   A   N   K   I   L   V   K   Q   S   P   M   L   V   A   -

   TACGACAATGCGGTCAACCTTAGCTGCAAGTATTCCTACAATCTCTTCTCAAGGGAGTTC
121 ---------+---------+---------+---------+---------+---------+ 180
   ATGCTGTTACGCCAGTTGGAATCGACGTTCATAAGGATGTTAGAGAAGAGTTCCCTCAAG

a        Y   D   N   A   V   N   L   S   C   K   Y   S   Y   N   L   F   S   R   E   F   -

   CGGGCATCCCTTCACAAAGGACTGGATAGTGCTGTGGAAGTCTGTGTTGTATATGGGAAT
181 ---------+---------+---------+---------+---------+---------+ 240
   GCCCGTAGGGAAGTGTTTCCTGACCTATCACGACACCTTCAGACACAACATATACCCTTA

a        R   A   S   L   H   K   G   L   D   S   A   V   E   V   C   V   V   Y   G   N   -

   TACTCCCAGCAGCTTCAGGTTTACTCAAAAACGGGGTTCAACTGTGATGGGAAATTGGGC
241 ---------+---------+---------+---------+---------+---------+ 300
   ATGAGGGTCGTCGAAGTCCAAATGAGTTTTTGCCCCAAGTTGACACTACCCTTTAACCCG

a        Y   S   Q   Q   L   Q   V   Y   S   K   T   G   F   N   C   D   G   K   L   G   -

   AATGAATCAGTGACATTCTACCTCCAGAATTTGTATGTTAACCAAACAGATATTTACTTC
301 ---------+---------+---------+---------+---------+---------+ 360
   TTACTTAGTCACTGTAAGATGGAGGTCTTAAACATACAATTGGTTTGTCTATAAATGAAG

a        N   E   S   V   T   F   Y   L   Q   N   L   Y   V   N   Q   T   D   I   Y   F   -
```

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                TGCAAAATTGAAGTTATGTATCCTCCTCCTTACCTAGACAATGAGAAGAGCAATGGTACC
          361   ---------+---------+---------+---------+---------+---------+ 420
                ACGTTTTAACTTCAATACATAGGAGGAGGAATGGATCTGTTACTCTTCTCGTTACCATGG

a                C  K  I  E  V  M  Y  P  P  P  Y  L  D  N  E  K  S  N  G  T   -

                ATTATCCATGTGAAAGGGAAACACCTTTGTCCAAGTCCGCTATTTCCCGGACCTTCTAAG
-         421   ---------+---------+---------+---------+---------+---------+ 480
                TAATAGGTACACTTTCCCTTTGTGGAAACAGGTTCAGGCGATAAAGGGCCTGGAAGATTC

a                I  I  H  V  K  G  K  H  L  C  P  S  P  L  F  P  G  P  S  K   -

                CCCCTGGTACCCAGGGGTAGTGGTAGTAAGCCTAGCATAAGTACAGTCCCAGAAGTATCA
          481   ---------+---------+---------+---------+---------+---------+ 540
                GGGGACCATGGGTCCCCATCACCATCATTCGGATCGTATTCATGTCAGGGTCTTCATAGT

a                P  L  V  P  R  G  S  G  S  K  P  S  I  S  T  V  P  E  V  S   -

                TCTGTCTTCATCTTCCCCCCAAAGCCCAAGGATGTGCTCACCATTACTCTGACTCCTAAG
          541   ---------+---------+---------+---------+---------+---------+ 600
                AGACAGAAGTAGAAGGGGGGTTTCGGGTTCCTACACGAGTGGTAATGAGACTGAGGATTC

a                S  V  F  I  F  P  P  K  P  K  D  V  L  T  I  T  L  T  P  K   -

                GTCACGTGTGTTGTGGTAGACATCAGCAAGGATGATCCCGAGGTCCAGTTCAGCTGGTTT
          601   ---------+---------+---------+---------+---------+---------+ 660
                CAGTGCACACAACACCATCTGTAGTCGTTCCTACTAGGGCTCCAGGTCAAGTCGACCAAA

a                V  T  C  V  V  V  D  I  S  K  D  D  P  E  V  Q  F  S  W  F   -

                GTAGATGATGTGGAGGTGCACACAGCTCAGACGCAACCCCGGGAGGAGCAGTTCAACAGC
          661   ---------+---------+---------+---------+---------+---------+ 720
                CATCTACTACACCTCCACGTGTGTCGAGTCTGCGTTGGGGCCCTCCTCGTCAAGTTGTCG

a                V  D  D  V  E  V  H  T  A  Q  T  Q  P  R  E  E  Q  F  N  S   -
```

```
          ACTTTCCGCTCAGTCAGTGAACTTCCCATCATGCACCAGGACTGGCTCAATGGCAAGGAG
      721 ---------+---------+---------+---------+---------+---------+ 780
          TGAAAGGCGAGTCAGTCACTTGAAGGGTAGTACGTGGTCCTGACCGAGTTACCGTTCCTC

a             T   F   R   S   V   S   E   L   P   I   M   H   Q   D   W   L   N   G   K   E   -

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      781 ---------+---------+---------+---------+---------+---------+ 840
          AAGTTTACGTCCCAGTTGTCACGTCGAAAGGGACGGGGGTAGCTCTTTTGGTAGAGGTTT

a             F   K   C   R   V   N   S   A   A   F   P   A   P   I   E   K   T   I   S   K   -

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      841 ---------+---------+---------+---------+---------+---------+ 900
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a             T   K   G   R   P   K   A   P   Q   V   Y   T   I   P   P   P   K   E   Q   M   -

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      901 ---------+---------+---------+---------+---------+---------+ 960
          CGGTTCCTATTTCAGTCAGACTGGACGTACTATTGTCTGAAGAAGGGACTTCTGTAATGA

a             A   K   D   K   V   S   L   T   C   M   I   T   D   F   F   P   E   D   I   T   -

          GTGGAGTGGCAGTGGAATGGGCAGCCAGCGGAGAACTACAAGAACACTCAGCCCATCATG
      961 ---------+---------+---------+---------+---------+---------+ 1020
          CACCTCACCGTCACCTTACCCGTCGGTCGCCTCTTGATGTTCTTGTGAGTCGGGTAGTAC

a             V   E   W   Q   W   N   G   Q   P   A   E   N   Y   K   N   T   Q   P   I   M   -

          GACACAGATGGCTCTTACTTCGTCTACAGCAAGCTCAATGTGCAGAAGAGCAACTGGGAG
     1021 ---------+---------+---------+---------+---------+---------+ 1080
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a             D   T   D   G   S   Y   F   V   Y   S   K   L   N   V   Q   K   S   N   W   E   -
```

```
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a              A   G   N   T   F   T   C   S   V   L   H   E   G   L   H   N   H   H   T   E   -

          AAGAGCCTCTCCCACTCTCCTGGTAAATAA
     1141 ---------+---------+---------+ 1170
          TTCTCGGAGAGGGTGAGAGGACCATTTATT

a              K   S   L   S   H   S   P   G   K   *   -
```

CLAIMS

1. Method of identifying a modulator of CD28 comprising comparing a structural model of a candidate modulator with a structural model of CD28 to thereby determine whether the modulator will bind to CD28, wherein the structural model is derived from, or comprises, structural coordinates of a crystal of: (i) CD28, (ii) a fragment of CD28, or (iii) a homologue of (i) or (ii).

2. Method according to claim 1 wherein said comparison comprises fitting (docking) the structural model of the candidate modulator with the structural model of CD28, and optionally determining the binding free energy of binding between the candidate modulator and CD28, wherein a low (more negative) binding free energy indicates that the candidate is likely to bind to CD28.

3. Method according to claim 2 wherein the binding free energy is calculated by (i) summing the free energies of interatomic contacts between the structural model of the candidate modulator and the structural model of CD28, or
(ii) determining the free binding energy between the force field of the candidate modulator and the force field of CD28.

4. Method according to any one of the preceding claims wherein whether or not the candidate modulator binds to CD28 comprises comparing the fitting of the structural model of the candidate modulator and the structural model of CD28 with the fitting of a structural model of another protein bound to a ligand, to thereby determine whether or not the candidate modulator will bind to CD28.

5. Use of the structural coordinates of a crystal of (i) CD28, (ii) a fragment of CD28, or (iii) a homologue of (i) or (ii), to identify a modulator of CD28.

6. Method or use according to any one of the preceding claims wherein the structural coordinates are obtainable by subjecting a crystal of (i) CD28, (ii) a

fragment of CD28, or (iii) a homologue of (i) or (ii), to X-ray diffraction measurements and deducing the structural coordinates from the diffraction measurements.

7. Method or use according to any one of the preceding claims wherein the crystal is of (i), (ii) or (iii) bound to a CD28 specific antibody or a fragment of said antibody.

8. Method or use according to any one of the preceding claims wherein the crystal has the structural coordinates shown in Table 4.

9. Method or use according to any one of the preceding claims which further comprises contacting the identified modulator of CD28 with (i) CD28, (ii) a fragment of CD28, or (iii) a homologue of CD28 or the fragment, to determine whether or not the modulator is capable of binding, or modulating the activity of, CD28.

10. A crystal as defined in any one of claims 1, 7 or 8.

11. Method of making a crystal as defined in any one of claims 1, 7 or 8 comprising providing a solution that comprises (i) CD28, (ii) a fragment of CD28, or (iii) a homologue of (i) or (ii), and optionally a CD28 specific antibody or fragment of said antibody, and subjecting the solution to conditions that cause the crystal to form.

12. Method according to claim 11 comprising:

(a) expressing (i), (ii) or (iii) in the form of a fusion protein with a second protein that is able to form a homodimer, wherein the presence of the second protein in the fusion protein causes (i), (ii) or (iii) to dimerise,

(b) cleaving the second protein from the fusion protein,

(c) reducing and alkylating one or more of the disulphide bonds present in the stalk-like region of (i), (ii) or (iii), and

(d) crystallising (i), (ii) or (iii) bound to a Fab fragment of an antibody.

13. Method according to 12 wherein the second protein mentioned in step (b) is an Fc fragment of an antibody.

14. Method according to any one of claims 11 to 13 wherein prior to crystallisation (i), (ii) or (iii) is expressed in the form of a fusion protein with an Fc fragment of an antibody, and optionally (i), (ii) or (iii) is cleaved from the fusion protein by thrombin.

15. Method according to any one of claims 11 to 14 wherein the (i), (ii) or (iii) is present in monomeric form in the crystal and/or one or more cysteine residues in the stalk-like region of (i), (ii) or (iii) are ethylated in the crystal.

16. A machine-readable data storage medium comprising a data storage material encoded with a machine readable data which when read by an appropriate machine is capable of displaying a representation of a crystal as defined in claim 1, 7 or 8.

17. A computer program comprising program code means for performing the method or use of any one of claims 1 to 9 when said program is run on a computer.

18. A computer program product comprising program code means stored on a computer readable storage medium for performing the method or use of any one of claims 1 to 9 when the said program product is run on a computer.

19. An antibody that induces superagonistic signalling by a cell surface receptor, wherein said antibody binds to the extracellular portion of the receptor at a membrane proximal region and said receptor comprises a cytoplasmic domain which is dependent on an extrinsic protein kinase, wherein said antibody does not bind only the C'-D loop of human CD28.

20. A chimeric protein that induces superagonistic signalling by a cell surface receptor, which chimeric protein comprises

(i) sequence representing a fragment of a ligand of the receptor, or a homologue of such a fragment, wherein the fragment or homologue is capable of binding to the extracellular portion of the receptor at a membrane proximal region, and
(ii) an Fc region of an antibody,
wherein said receptor comprises a cytoplasmic domain which is dependent on an extrinsic protein kinase.

21. A chimeric protein that induces superagonistic signalling by one or two types of cell surface receptor, which chimeric protein comprises two Fv regions of an antibody that may be the same or different, wherein at least one of the Fv regions is capable of binding to a first receptor, and the other Fv region either binds to (i) said first receptor, or (ii) a second type of cell surface receptor which is found on a cell that contacts a cell which expresses (i), wherein said first receptor, and optionally also said second receptor, comprises a cytoplasmic domain which is dependent on an extrinsic protein kinase.

22. An antibody or chimeric protein according to any one of claims 19 to 21 which
(i) binds orthogonally to the main axis of the domain of the receptor which it is binding, and/or
(ii) which lies parallel to the cell surface when bound to the receptor, and/or
(iii) which binds to a β-strand polypeptide chain of the receptor, and/or
(iv) which binds within 75Å of the cell surface.

23. An antibody or chimeric protein according to any one of claims 19 to 22 which binds to a sequence as shown in Table 1 or an equivalent homologous sequence in the proximal membrane region of a receptor which is capable of being induced to signal by the antibody or chimeric protein.

24. An antibody or chimeric protein according to any one of claims 19 to 23 wherein said receptor
(i) comprises an ITAM motif, ITIM motif or "switch" signalling motif, and/or

(ii) is a member of the CD28 family of proteins, and/or

(iii) is expressed on the surface of a cell of the immune system, and/or

(iv) comprises a cytoplasmic domain capable of being phosphorylated by a Src kinase, and/or

(v) comprises a cytoplasmic domain capable of being dephosphorylated by CD45, and/or

(vi) is one of the receptors listed in Table 2, or is a homologue thereof.

25. Method of obtaining an agent capable of inducing superagonistic signalling by a receptor as defined in claim 20 or 24, comprising determining whether a candidate agent binds to a membrane proximal extracellular region of the receptor, to thereby determine whether the candidate agent is capable of superagonising the receptor.

26. Method according to claim 25 comprising determining whether a candidate agent which binds to the receptor, fails to bind to a mutated version of the receptor wherein one or more amino acids in a membrane proximal extracellular region of the receptor have been mutated, failure to bind to the mutant receptor indicating that the agent is capable of inducing superagonistic signalling by the receptor.

27. Method according to claim 25 or 26 wherein the method is performed by contacting the candidate agent with (i) a full length receptor with said mutations, or (ii) a homologue of (i) with said mutations, or (iii) a fragment of (i) or (ii) comprising said mutations.

28. Method according to claim 25 wherein the location of the binding of the candidate agent is determined by contacting the candidate agent with a peptide which comprises sequence from a membrane proximal extracellular region of the receptor and determining whether the candidate agent binds to the peptide, the binding of the candidate agent to a peptide indicating that the agent is capable of inducing superagonistic signalling by the receptor, wherein said sequence is at least 5 amino acids in length.

29. Method according to claim 28 comprising contacting the candidate agent with an array of overlapping peptides, which peptides represent fragments of the receptor and are 5 to 20 amino acids in length, the binding of the candidate agent to a peptide which represents a membrane proximal extracellular region of the receptor indicating that the agent is capable of inducing superagonistic signalling by the receptor.

30. Method of obtaining a superagonistic antibody as defined in any one of claims 19 or 22 to 24 comprising
(i) screening antibodies for the ability to induce superagonistic signalling by a receptor according to claim 20 or 24, wherein said antibodies have been obtained by immunizing an animal with (a) said receptor, (b) a homologue of said receptor, or (c) a fragment of (a) or (b), or
(ii) screening antibodies for the ability to induce superagonistic signalling by a receptor according to claim 20 or 24, wherein said antibodies have been generated in a combinatorial antibody library.

31. Method of obtaining a superagonistic antibody as defined in any one of claims 19 or 22 to 24 comprising
(i) immunising an animal with a peptide comprising a sequence of length 5 to 20 amino acids which represents an extracellular membrane proximal region of the receptor and obtaining the antibody produced by the animal against said sequence, or
(ii) selecting an antibody from a combinatorial antibody library based on its ability to bind a peptide as defined in (i), and optionally
(iii) recombinantly expressing the antibody obtained in (i) or (ii).

32. Method according to any one of claims 1 to 9 or 25 to 31 further comprising formulating the identified modulator, obtained antibody or obtained agent into a pharmaceutical composition.

33. A peptide of length 5 to 20 amino acids comprising a sequence that binds to an antibody according to any one of claims 19 or 22 to 24.

34. Method of inducing superagonistic signalling by a receptor according to claim 20 or 24 on a cell surface comprising sterically inhibiting contact between a phosphatase of the cell and the receptor, excluding a method in which an antibody that binds only the C'-D loop of CD28 is used to sterically inhibit contact between CD28 and the phosphatase CD45.

35. Method of modulating the immune response of a patient comprising administering to the patient:

(i) a modulator identified by the method of any one of claims 1 to 9, or

(ii) an antibody or chimeric protein according to any one of claims 19 to 24 or which is obtained by the method of claim 30 or 31; or

(iii) an agent obtained by the method of any one of claims 25 to 29, or

(iv) a peptide that stimulates an antibody response in the patient, wherein the antibody response comprises an antibody according to any one of claims 19 or 22 to 24, or

(vii) a nucleic acid capable of expressing (i), (ii), (iii) or (iv).

Figure 1

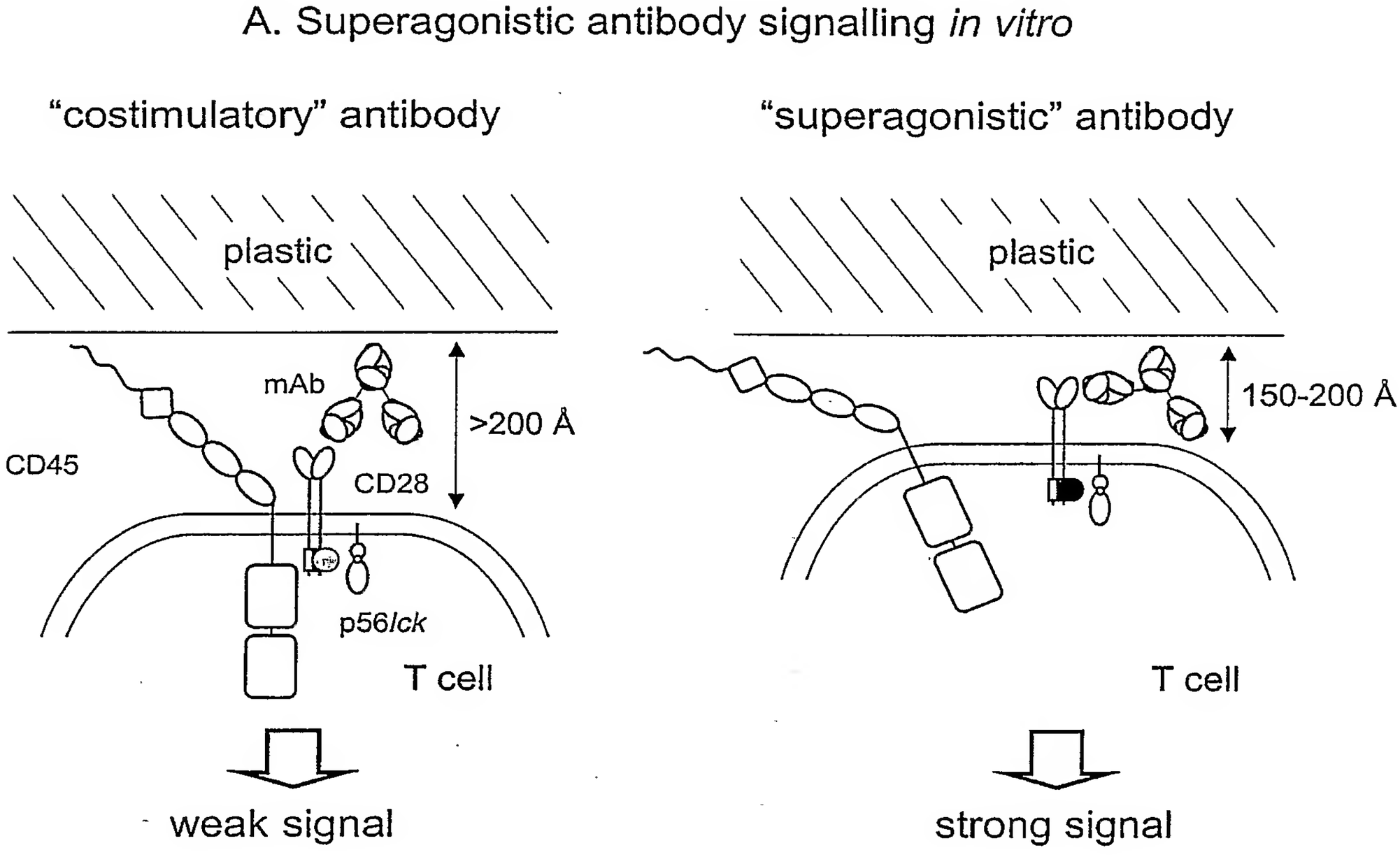


Figure 1

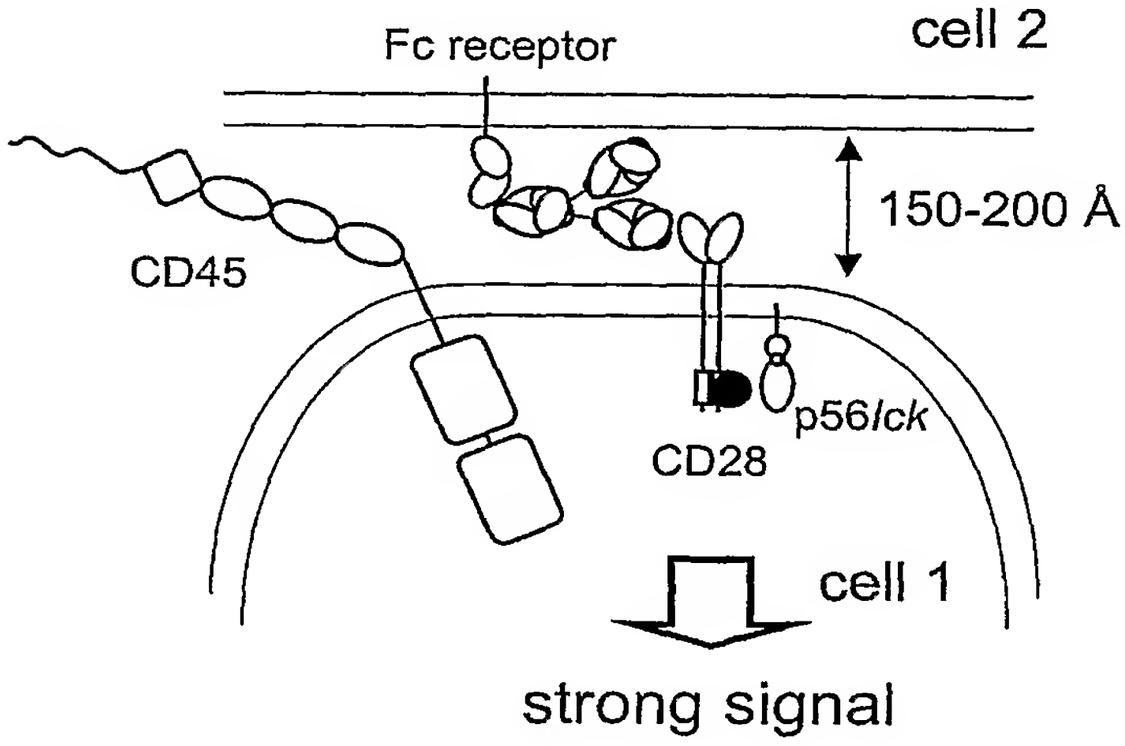
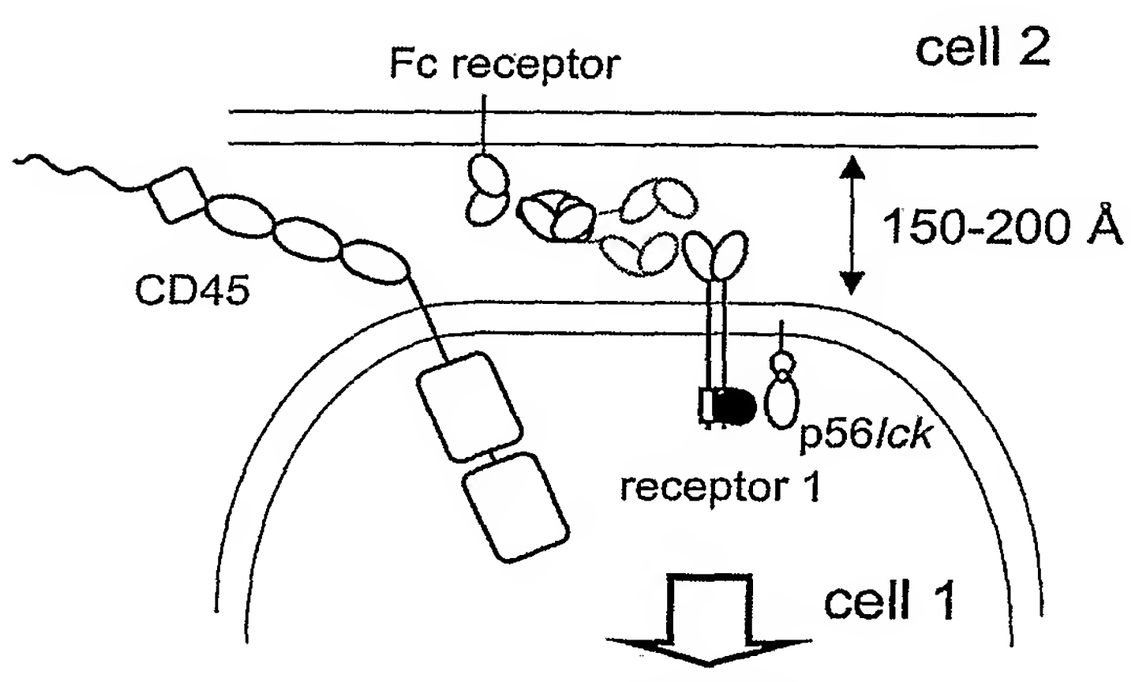

B. Superagonistic antibody signalling *in vivo*
Fc receptor
cell 2
150-200 Å
CD45
p56*lck*
CD28
cell 1
strong signal

Figure 1

C. Chimeric protein 1 (ligand-based)



chimeric ligand/Fc superagonist:
• binds Fc receptor on cell 1
and receptor 2 on cell 2

Figure 1

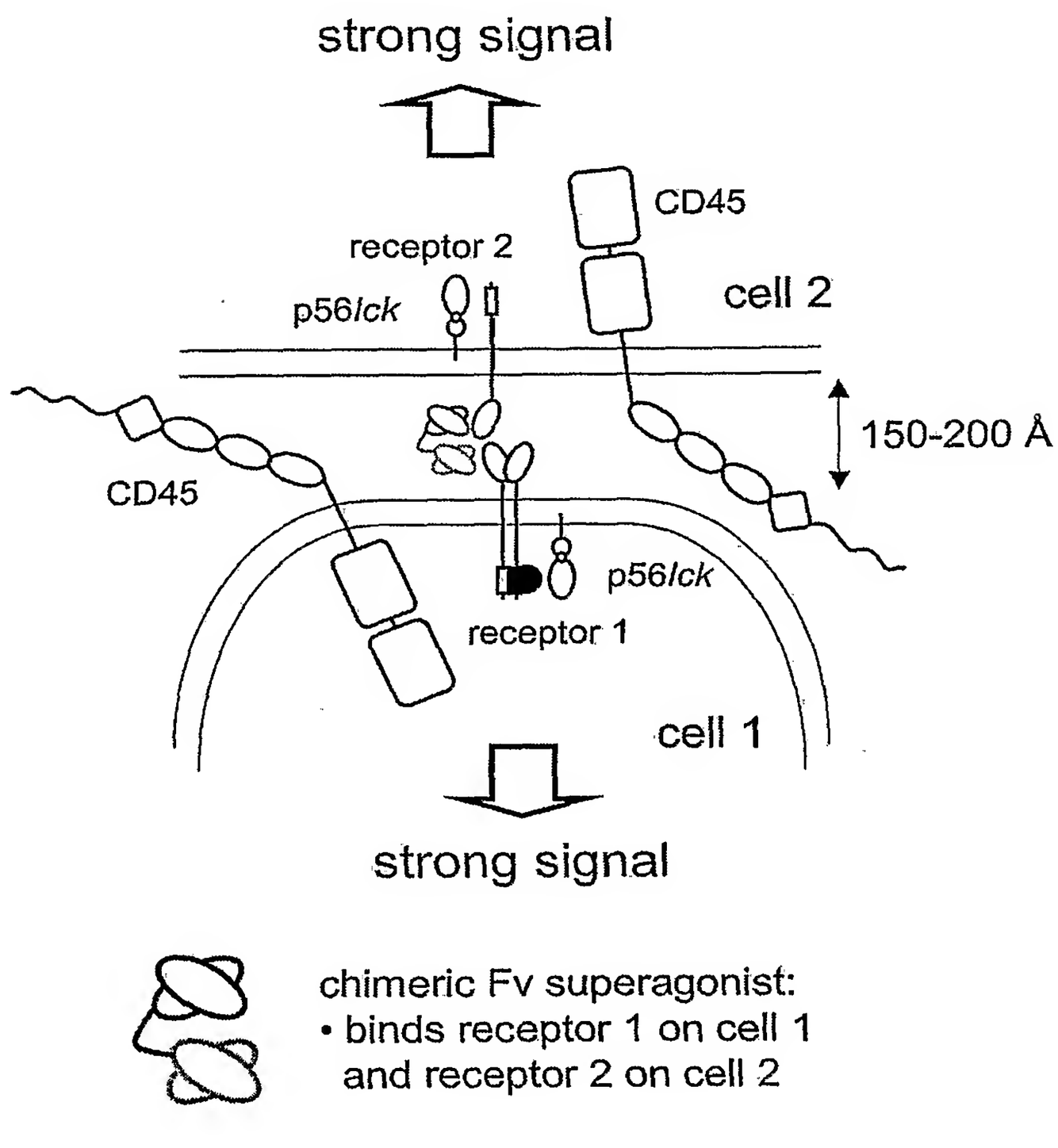
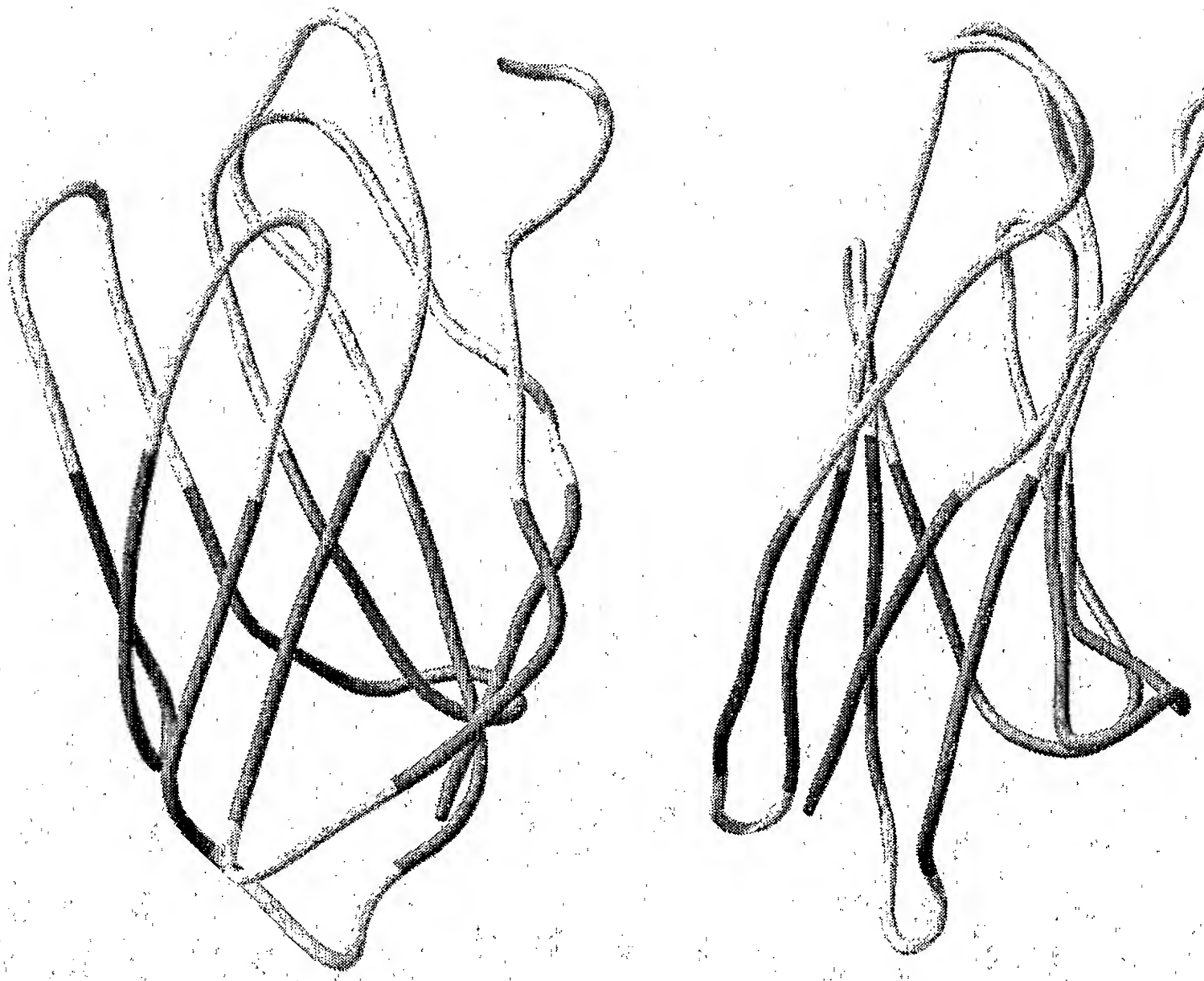
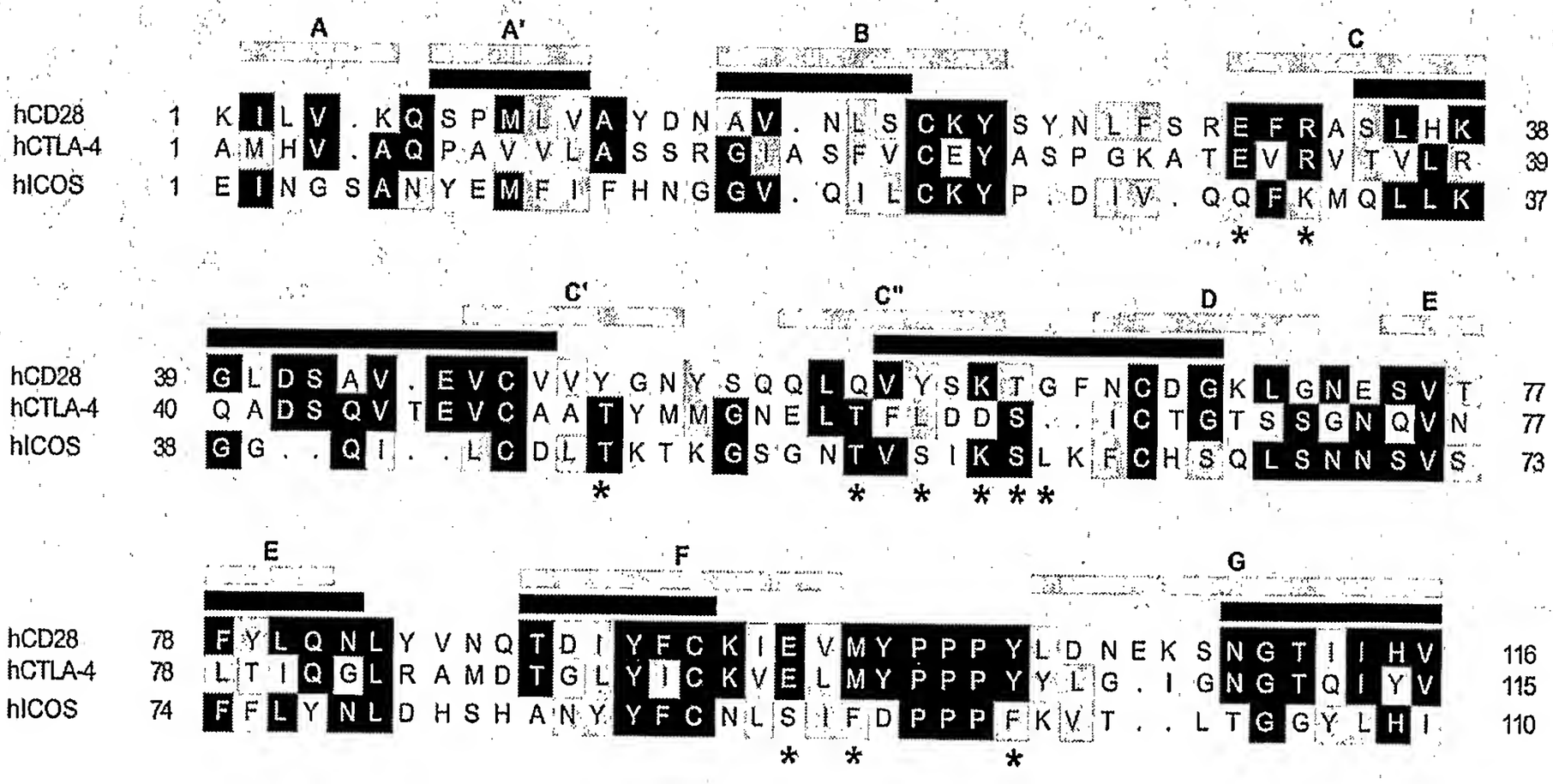


Figure 2

A

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A'
B
C
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hICOS 1 E I N G S A N Y E M F I F H N G G V . Q I L C K Y P . D I V . Q Q F K M Q L L K 37
C'
C"
D
E
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F
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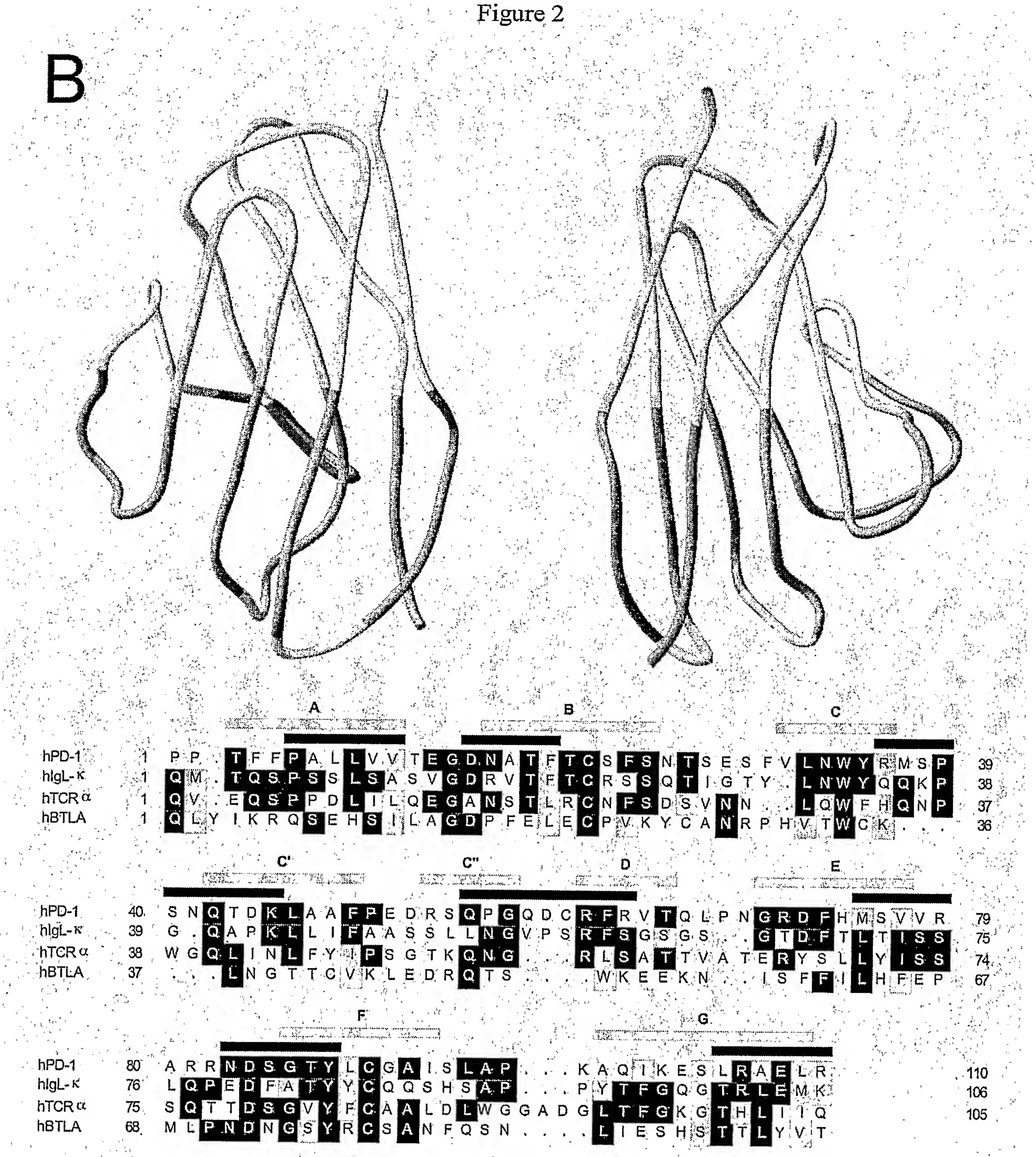
Figure 2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D
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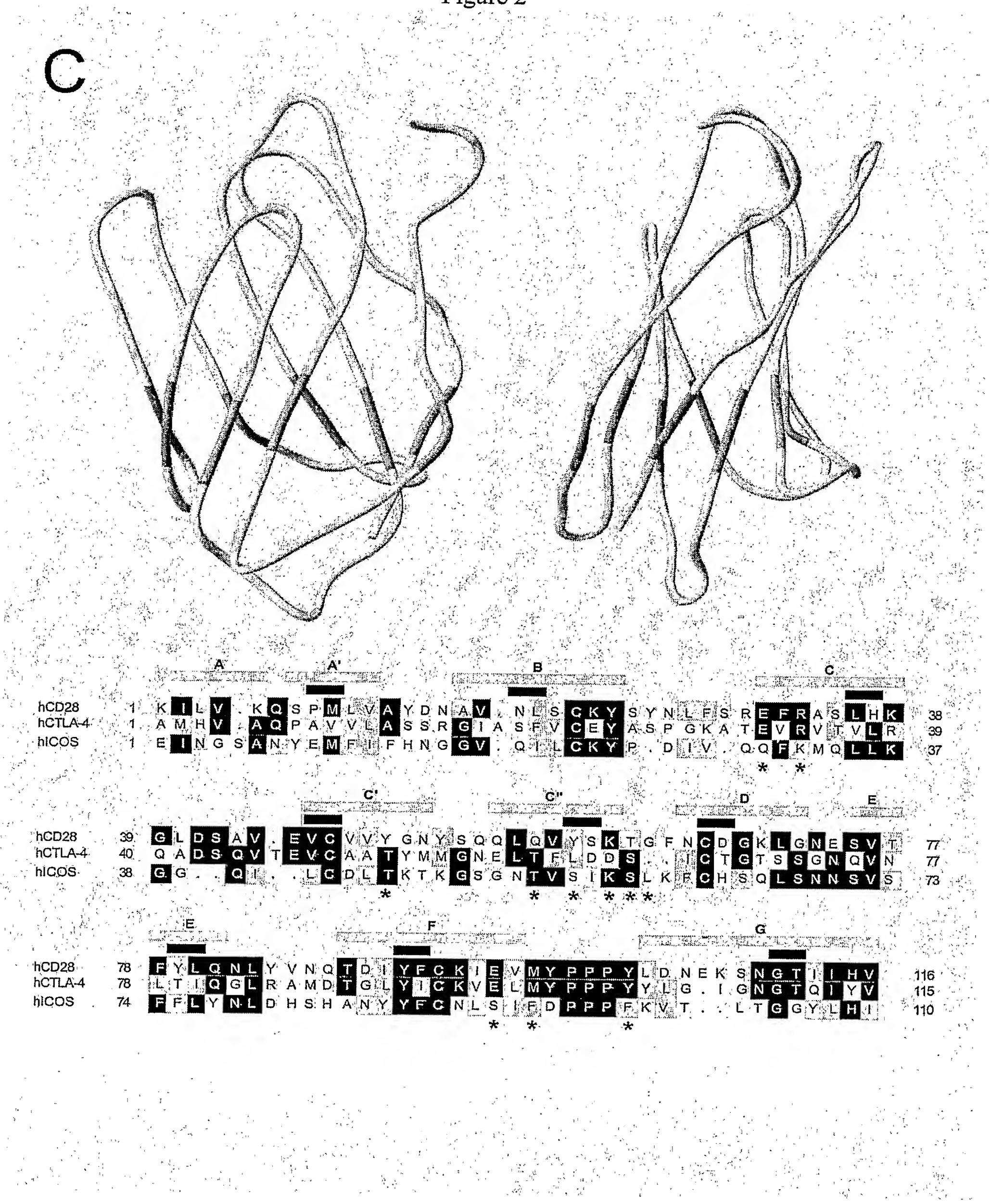
Figure 2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A
A'
B
C
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C'
C"
D
E
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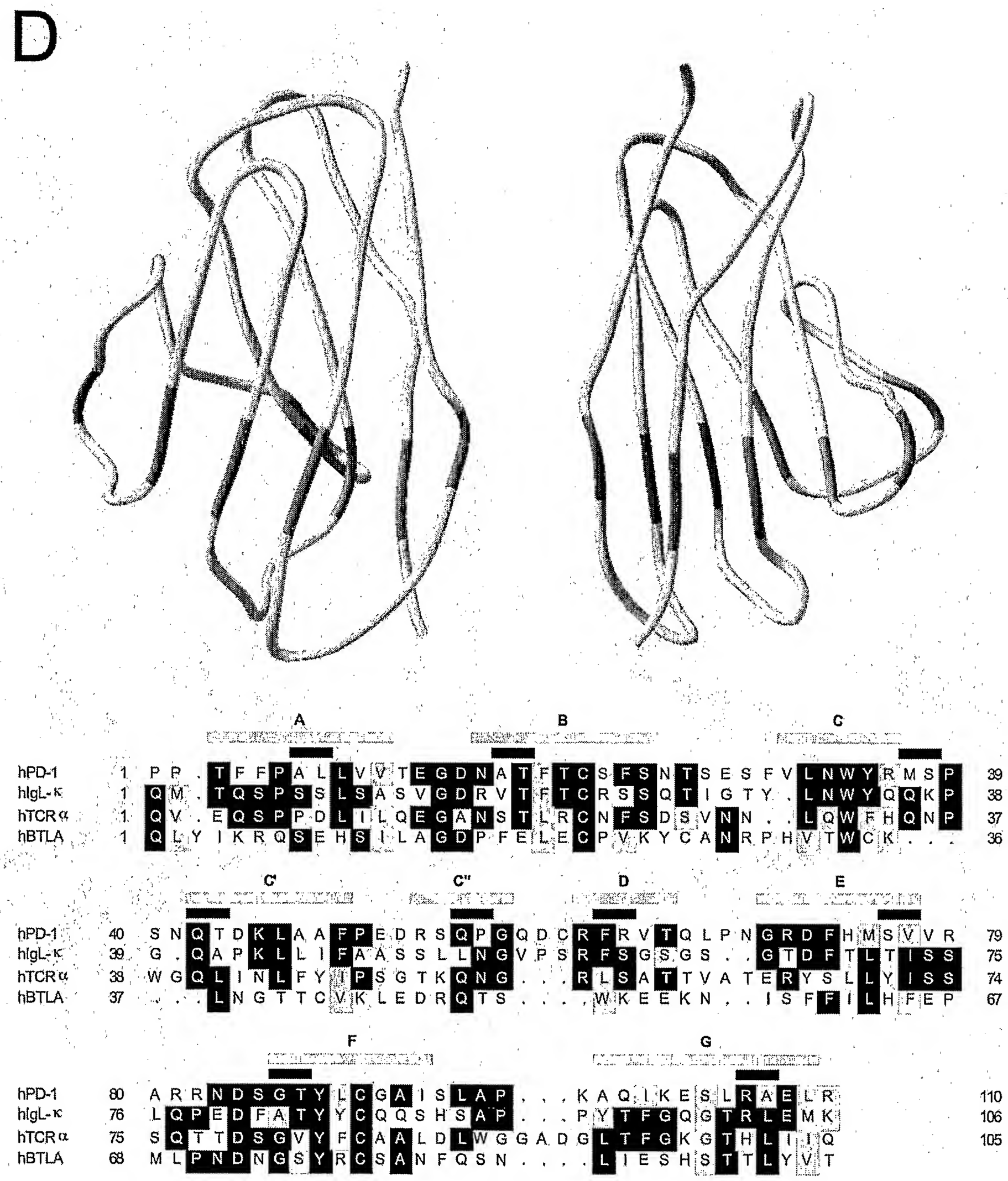
Figure 2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B
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C'
C"
D
E
F
G
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